Mekelle University

College of Business and Economics

Department of Cooperative studies

Credit Utilization and Rep ayment Performance of members of Cooperatives in Alaje Woreda, T igray, Ethiopia:

By

Asqual Berhe Tesfay

A Thesis

Submitted in Partial Fulfillment of the Requirements for the Master of Arts Degree in

Cooperative Marketing

Advisor: Dayanandan (PhD)

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DECLARATION

MEKELLE University

College of Business and Economics

Department of Cooperative Studies

This is to certify that this thesis entitled ñ**Credit utilization and Repayment performance of members of cooperatives in Emba Alaje Woreda, Tigray, Ethiopia**ò submitted in partial fulfillment of the requirements for the award of M.A degree in Cooperative Marketing to the College of Business and Economics, Mekelle University, through the Department of Cooperative studies, done by **Asqual Berhe Tesfay**, Id.No. CDANR/PR0012/01 is an authentic work carried out by her under my guidance. The matter embodied in this project work has not been submitted earlier for award of any degree or diploma to the best of my knowledge and belief.

Name of the student: - **Asqual Berhe Tesfay**,

Signature _____ date_____

Name of the Advisor: - **Dayanandan (PhD)**,

Signature and date_____

DEDICATION

This thesis is dedicated to my Mother W/ro Kasa Reda and My Sister Netsanet Berhe.

BIOGRAGH

Mrs. Asqual Berhe Tesfay was born in July 1964 in Mekelle Town, Tigray region. She Started her Education at Gerebtsedo elementary School and her junior secondary school in Mekelle Melestegna Then she completed her senior secondary education at Astie-Yohanes comprehensive high school in 1982. After completed her high school she was employed as agricultural development agent for Tigray Ministry of Agriculture in 1983. From 1983 -1997. She has served as agricultural credit and marketing information expert in different Regions of Ethiopia. Since, 1997 she is working in Tigray Region Cooperative promotion office as marketing information expert. In September 2003 she joint Mekelle University Continuing education and graduated in management in 2007.Then she is serving as marketing information expert in Tigray cooperative promotion agency until she joined Mekelle University for second degree in 2008/09 to specialize in cooperative marketing

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ABBREVIATIONS

AIDB	Agricultural and Industrial Development Bank
CACC	Central Agricultural Census Commission
CBE	Commercial Bank of Ethiopia
CIDA	Canada International Development Agency
CSA	Central Statistical Agency
DBE	Development Bank of Ethiopia
FAO	Food and Agriculture Organization
FMOH	Federal Ministry of Health
FSP	Food security project
GDP	Gross Domestic Product
GTZ	German Technical Cooperation
IDA	International Development Association
LDSs	less Developed Countries
LLF	Log Linear Function
LPM	Linear Probability Model
ML	Maximum Likelihood
MOARD	Ministry of Agriculture and rural development
MPCs	Multi-purpose Cooperatives
NBE	National Bank of Ethiopia
PCs	Producersô Cooperatives
RDPS	Rural Development Policy and strategy
RFIs	Rural financial Institutions
RUSACCOs	Rural Saving and Credit Cooperatives
TBoARD	Tigray Bureau of Agriculture and Rural Development
TNRS	Tigray National Regional State
TNRSDP	Tigray National Regional State Development plan
TRCPO	Tigray Regional Cooperatives Promotion Office
TRFSP	Tigray Regional Food Security Project
WCPA	Woreda Cooperative promotion Agency
USD	United Stateôs Dollar

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1 ABSTRACT

Delivering productive credit to the rural poor has been a hotly pursued but problem-plagued undertaking. Providing low-cost, efficient credit services and recovering a high percentage of loans granted are the ideal aims in rural finance. This is because low repayment performance discourages the lender to promote and extend credit. Then investigation of the various aspects of credit used and loan defaults is of great importance both for policy makers and the lending institutions. Therefore, the major concern of this study was to identify the major socio-economic and institutional factors that affect credit utilization and repayment capacity of members of cooperatives of Emba Alaje Woreda in southern Zone of Tigray National State In the course of this study, primary data were collected from156 sample households and secondary data also collected from respective organizations in the study area. The analysis was made using descriptive statistics and logit model. Descriptive statistics such as mean, standard deviation and percentage were used for analyzing the data. In addition, t-test and chi-square test were employed to compare credit use and misuse by borrowers as well as non defaulter and defaulter groups with respect to the hypothesized and other related variables. Logit model was used to identify the factors influencing credit utilization and repayment performance of households. Eight continues explanatory variables and fourteen dummy variables were included in the logit mode. Results of Variance Inflation Factor (VIF) and contingency coefficient showed that the continuous and dummy variables have not multi-co linearity effect between the independent variables and high degree of associated. The binary logit model for credit utilization and repayment the most influential explanatory variables are 13 and14 respectively. Out of which, five variables were significant and the rest were insignificant to explain the dependent variable. The loan repayment model out put variables are supervision and misuse of the loan is highly significant at less than 1 percent and loan from other sources and natural hazard are significant at less than 10 per cent. On the other hand Credit utilization model out put affect by only one variable which is timely credit service significant at less than 10 percent. Based on the findings also included conclusions and recommendation. Therefore, taking this into consideration, these factors as indicator for designing agricultural activity programs may assist cooperatives and policy makers to introduce strategy for alleviating the serious problem and strengthening credit utilization and repayment performance of farmers.

Chapter One

Introduction

1.1 Back ground

Ethiopia, located in the North Eastern part of Africa, also known as the Horn of Africa, lies between 3 and 15 degrees north latitude and 33 and 48 degrees east longitude .The total area of the country is around 1.1 million square kilometers (FMH, 2008).Ethiopian economy is dominated by subsistence agriculture. Agricultural sector Accounts for 46 percent of the GDP, 80-90 percent the export revenues and employs over 85 percent of the population. The yearly growth of food production in the country could not exceed1percent for several years while the average population growth rate is nearly 3 percent every year (Stefen N. 2003).As a result, chronic food shortage and drought-induced famines have been common phenomena in the country. However, poverty is still pervasive with 47 percent of the population estimated to living in below the poverty line Federal Ministry of Health (FMH, 2008).

The development of the agricultural sector calls for, among others, the introduction of modern technologies. However, with the introduction of new production technologies, the financial needs of farmers increase manifold Steady agricultural development depends upon the continuous increase in farm investment. Most of the time, heavy investment cannot be made by the farmers out of their own funds because of their low level of incomes. Moreover, there exists no significant margin of income that can be channeled into the agricultural sector to undertake developmental activities. Thus, here comes the importance and significance of the availability of rural credits to bridge the gap between owned and required capital (Singh et al., 1985).

According Robinson (2001), the unmet demand for financial services for the poor in developing countries is huge estimated that 80 percent of the worlds population living in developing countries do not have access to formal financial services .This has a significant implications for addressing poverty in the developing countries because lack of access to finance prevents people from increasing their productivity and thus their

incomes and well being. Further estimates that if the demand for financial services were meet by expanding the provision of formal financial services the livelihoods of 1.8 billon people would be substantially improved in the World.

However, the financial services available to poor people in developing countries are very limited. Many poor people rely on money lenders and pawnbrokers. While these provide easy access to credit but the cost is very high. A typical range for interest rates charged by money lenders is given at between 10-100% a month .However; there are examples of much more onerous interest rates. In the markets in Tegucigalpa some street vendors borrowed money in the morning, to buy their stock for sale that they repay in the evening with 20% interest (*ibdi,* 2001).

As Wolday (2004) stated, in Ethiopia, among other things, lack of finance is one of the fundamental problems impeding production, productivity and income of rural and urban households. Since access to institutional finance is very limited, the majority of the poor obtain financial services through informal channels, such as money lenders, 'Ikub', relatives and others.

The Rural Development Policy and Strategy (RDPS), recognize that appropriate and timely rural finance is the critical missing element in rural development. Providing adequate, appropriate and timely credit is considered one of the means to break the poverty cycle and bring about sustainable development. (May 2009).

Deliberate government effort at accelerating socio-economic development in Ethiopia may date back to the immediate post-Italian occupation period: the establishment of the Ministry of Agriculture in 1943 and the Agricultural Bank of Ethiopia in 1945 among others may be an indication. In line with the dominant development approach of the period, the Imperial Ethiopian Government intervened in the allocation of resources in order to accelerate national development. The intervention took various forms including: interest rates, establishment of public commercial as well as specialized banks and giving

priority to productive projects in the use of foreign credits. Public banks were supposed to mobilize resources and channel them in accordance with the plan.

However, just like what happened in most directed programs of other countries, benefits mainly accrued to the non-target groups. Overall, the extent of exclusion was well recognized by the Agricultural and Industrial Development Bank (AIDB), board so much that in 1974 it decided to introduce a small farmerôs credit program on pilot basis but was not implemented as it was overtaken by events of the revolution (Assefa, 1987).

According to Assefa et al. (2005), the Derg regime reorganized the financial sector in a manner that reflects its declared communist ideology and its economic thinking as stated in the Declaration on economic policy of socialist Ethiopia. The result was marginalization of the private sector, forcing to depend on self-financing and informal credit. The share in domestic credit outstanding during 1986-90 of the private sector and cooperatives averaged 4.7 and 1.1 per cents, respectively. More than 89 per cent of AIDB agricultural loans went to state farms while the rest went to agricultural cooperatives, with the private peasant sector receiving negligible share.

Moreover, NGO credit schemes generally disregarded domestic savings mobilization, mainly depending on donor funds. These authors stated that financial liberalization in Ethiopia began at the end of 1992. The financial reforms undertaken in Ethiopia include elimination of priority access to credit, interest rate liberalization, restructuring and introduction of profitability criteria, reduced direct government control on financial intermediaries and limits bank loans to the government, enhancement of the supervisory, regulatory and legal infrastructure of the National Bank of Ethiopia (NBE), allowing private financial intermediaries through new entry of domestic private intermediaries (rather than privatization of the existing ones) and introduction of treasury bills through auction markets. Assefa (2004), prior to 1992, the interest rate charged to farmersô cooperatives was 5%, which is below the rate of savings deposit (6%). Financial institutions were obliged to pay interest margin on deposits from their own sources. Lending rates that were between 4.5 and 9.5% were raised to 11-15% depending on the

sector until September 1994. Discrimination of credit access and interest rates by type of ownership (i.e. between state owned enterprises, cooperatives and private firms) was eliminated. Sect oral interest rates discrimination was reduced and domestic establishment of private financial institutions was allowed and encouraged through proclamation number 29/1992 Since January 1995, the National Bank of Ethiopia, switched to a policy of floors on deposits and ceilings on lending rates, allowing banks to set interest rates. The National Bank of Ethiopia (NBE), revised the floor for saving deposits downwards to 3% from 6% in 2001/02 with an intention of encouraging investment and boost economic activity. Lending rates quickly followed suit as the minimum-lending rate changed by commercial banks went down from 10.5% to 7.5% in the same period.

Also, banks have been decentralizing loan decision making in order to reduce transaction costs of borrowing and reducing screening hence transaction costs of lending. Entry restrictions into banking were lifted for domestic banks. Entry rules and guidelines have been drawn. The lending approaches of banks to target beneficiaries could be both a direct type and a two-tier system. The direct type is in which the Bank extends credit directly to the end user. This could be an individual person or organization such as cooperatives, government or private enterprises, which have legal entity. In the two-tier approach, the Bank transfers its financial resources to end users through other bodies such as cooperatives and peasant associations. In the case of the first type, the credit beneficiaries enter loan agreements with the bank and are responsible for repayment of the borrowed loan, whereas in the case of the latter other intermediaries such as cooperatives or associations sign a loan contract with the bank and channel the borrowed fund to their members or end users.

The main reason why formal financial institutions such as commercial and development banks fail to provide the required capital to small enterprises and farmers is due to involuntarily and voluntarily default. It is very difficult for formal banks to monitor what has been done with loan. A loan may be taken for productive reasons, but may be used for other purposes (such as consumption) that cannot be easily transformed to money repayment. A loan may be put into risky activities that might fail to repay the loan. These

create a problem of involuntarily default. Voluntarily or strategic default can arise when the legal system of loan enforcement is weak, or probability costly (Woldehanna et al., 2002).

In the case of rural Ethiopia, regional governments act as intermediaries between banks and farmers. These governments use their federally allocated budget as collateral to borrow from banks and lend these funds to farmers for the purchase of agricultural inputs. This procedure has enabled banks to lend a great deal of money to farmers. Nevertheless, there have been cases of default, which have necessitated repayment out of the budget allocations of the regional administrations. However, the inability of the formal financial sector to provide adequate financial services to small farmers and the poor in general continued even after the reform.

Non governmental organizations (NGOs), have played an important role in strengthening community based financial institutions capacity through injecting finance into rural communities through grants, seed money and revolving funds for community groups such as cooperatives and micro finance institutions .

Food security is one of the key priorities of development intervention in Ethiopia. Significant parts of Ethiopia are characterized by persistent food insecurity. While droughts and other disasters (such as floods) are significant triggers, more important are the factors which create and/or increase vulnerability to these shocks and which have undermined livelihoods. These factors include land degradation, limited household assets, low levels of farm technology, lack of employment opportunities and population pressure. As a consequence, but also exacerbating the situation, levels of education are low and disease prevalence is high. Prior to 2005, the typical response to this persistent food insecurity was emergency relief resourced through an unpredictable annual appeals process.

In Tigray food security Coordination Office has established the food security project (FSP), to contribute to the efforts being made to wards food security and sustainable

development in the Region. The main aim of this project is empowering vulnerable, food insecure households/ communities in drought prone areas, to increase their incomes and build their assets through real participation and involvement and decision of beneficiaries them selves.

In Tigray different studies revealed that more than 40% of the total households have to relay on food aid every year for their own survival. This indicates that food insecurity is the prime challenge and top priority agenda in the Region. The Regional government of Tigray in collaboration with donors, multilateral projects, has been engaged in combating food insecurity in the Region since 1995. (FSP, Annual Report, 2008).

However, the problem of food insecurity is deep rooted that the effort being made are not sufficient enough to alleviate the problems. As a result efforts are being continued in a comprehensive manner. Different projects are involved in the food security intervention to help and enable the people of the Region to be self sufficient in food production.Most of the beneficiaries have engaged in livestock raring including small ruminants such as goats, sheep, and poultry.

Food security project Credit term (Cr 3646 ET**)** has been started in Tigray Region in Jan, 2003 in two woredas, having10 kebelles each. At present the project is being implemented in 20 woredas that covers 60% of the Regions rural woredas and 278 kebelles (FSP Annual Report, 2008).The project is a community support project that helps vulnerable food insecure communities to increase their income and build their assets.

Most of the community in the project area have positive attitude towards the project as it has helped, so many poor people to extricate them selves from acute poverty to increase access to food for poorer rural households and all their members through improving their resource base, and increasing their incomes and employment.

It is important, however, that these borrowed funds are invested for productive purposes and then generated additional incomes be used to repay to the lending institutions to have

sustainable and viable production process. Delivering productive credit to the rural poor has been a hotly pursued but problem-plagued undertaking. Providing low-cost, efficient credit services and recovering a high percentage of loans granted are the ideal aims in rural finance (Wenner, 1995). This is because low repayment performance discourages the lender to promote and extend credit to large and fragmented farm households. Therefore, investigation of the various aspects of proper credit users, loan defaults, nature and conditions of loan provision are of great importance both for policy makers and the lending institutions. Hence, this study was designed to identify the credit utilization patterns and factors which affect loan repayment performance of members of cooperatives in Emba Alaje Woreda southern zone of Tigray.

1.2 Statement of the Problem

As agriculture is the backbone of Ethiopian economy, the first step should be to increase the level of agricultural production and productivity from the small parcel of land. The present situation of the country indicates that, land is relatively a scarce resource to absorb the abundant labor force, therefore; it is through labor using but land saving technology that our future development shall be based. The vicious circle of poverty ï low capital ï low productivity ï low income - low savings for investment activities ï low capital formation make it difficult to initiate or expand agricultural and non-agricultural activities of the smallholder production in the rural area where 85% of the population is residing.

The availability of inadequate financial service providers in many rural areas brings its own complex problems in the poverty alleviation campaign. To solve this problem the regional government provides comprehensive financial services facilities, through microfinance, cooperatives and NGOs. One of the credit providers in rural Ethiopia is food security project (FSP) which is financed by the World Bank, Canada International Development Agency (CIDA), the Italian government and a matching fund allocated by the Ethiopian government. A significant amount of fund has been provided of which 96% has been utilized for the poorest rural households to increase their asset and income through revolving fund approach (MoARD, 2006).

Failure by farmers to repay their loans in time or to repay them at all is a serious problem facing both agricultural credit institutions and household farmers. Moreover; the loan disbursement and collection process imposed considerable pressure on administrators and extension workers. They became lenders and collectors of loans, which affected their relationships with farmers and left little time for regular extension activities. The farmers also often considered the loan as a government gift or as their right not to repay, which led to the misuse of resources and a tendency not to repay the loans.

In many cases the credit institutions were unable to collect the loans and forced the government to repay from its annual budgets on behalf of defaulter farmers. This indicates that the management of micro-credit in rural settings is quite challenging activity. It requires the establishment of local institutions which can manage the provision of the credit on a sustainable manner.

At present, in Tigray National Regional State agricultural credit input is disbursed to farmers through MPCs, RUSACOs and Dedebit Micro Finance Institution. In the past years failure by cooperatives and their members to repay their loan had observed in many parts of the Region. This Problem of loan repayment was affecting the continuous flow of credit to the farmers. According to Woredas Cooperative Promotion Agency (WCPA Annual report, 2008), Emba Alaje Woreda is one of the areas which have a problem in loan repayment in due date. Therefore, to improve appropriate lending mechanisms and procedures, information about credit utilization and factors affecting loan repayment performance of members of cooperatives should be investigated.

1.3 Significance of the Study

Agriculture is the dominant sector in the Ethiopian economy. The level and the speed of economic development are determined to a great extent by the growth of agricultural sector. This sector, which is composed of small, fragmented and subsistence farming families has limited or no working capital to purchase inputs to improve productivity.

Hence, credit is a vital component of modern agriculture. The importance of agricultural credit in the development of the sector has been underlined strongly by various authors

Kebede, 1982; Itana, 1985; Berhanu, 1993; Negussie, 1993; Bekele, 1995; Freeman et al 1996; Belay, 1998; Fantahun, 2000; Meehan, 2001; Woldy, 2002; and Tsehay and Mengistu, 2002, as cited by Ambes (2003). All these authors has concluded that credit helps to bring the requested productivity, bring farmers livelihoods for better and food self-sufficiency through the adoption of new and improved technologies. However, there are many factors influencing credit use and on time repayment. Credit in agriculture can also be an instrument of defaults and stagnation rather than an instrument of progress, unless it is promptly and efficiently used in increasing agricultural productivity (Dhawan and Kahlon, 1977). Under conditions of smallholder farmers, both the provision of credit efficiently use and to repay in time are difficult problems for increasing agricultural production and productivity.

Therefore, in Tigray region, a considerable amount of productive time of cooperative management bodies, civil servants and other administrative bodies has been wasted to make the farmers repay their loan under a credit repayment campaign. There is also a problem of diverting the regional development budget for meeting formal obligation on the behalf of the defaulters.

So far, there is little studies had performed to identify the possible reasons why farmers did not repay their debt in time. Hence, this study was tried to fulfill this gap by recommending possible improvements on credit utilization and loan repayment. Apart from this, the study might serve also as a baseline for further studies in the area and as a reference material. Moreover, the study was helped and guides the Cooperative societies, government organizations and non governmental bodies in setting credit provision mechanism.

1.4 Purpose of the study

The purpose of this study was to identify factors affecting loan repayment performance and to assess the importance of credit utilization pattern of members of Cooperatives. Therefore, this study was expected to come up with strong suggestions and

recommendations to improve credit utilization and repayment status of members of Cooperatives in Alaje woreda.

1.5 Objectives of the Study

1.5.1 General Objective

The Overall Objective of this study was to identify the Factors Influencing Credit utilization and Loan Repayment Performance of members of Cooperatives in Emba Alaje Woreda Tigray, Ethiopia.

1.5.2 Specific Objectives

1. To assess the credit utilization pattern of members of Cooperatives in Emba Alaje Woreda.
2. To identify factors influencing loan repayment behavior of members of Cooperatives in Emba Alaje Woreda.
3. To identify other sources of credit prevalent among smallholder farmers in the Woreda.
4. To offer recommendations for efficient credit Utilization and Loan repayment.

1.6 Research Questions

1. Is there any relation ship between socio-economic factors and credit utilization pattern?
2. Which factors influencing loan repayment performance of members of cooperatives?
3. Are there other sources of credit available in the Woreda?
4. What types of mechanism are needed in order to improve credit utilization and loan repayment performance of members?

1.7 Research hypothesis

In order to analyze the proposed study the researcher use the following hypothesis

1 There is no any relation ship between socio economic factors and credit utilization patterns of members.

2 There is no any significant difference among factors in influencing loan repayment of members.

1.8 Scope of the Study

This study was conducted in Emba Alaje Woreda cooperatives As stated in the objectives, the main aim of this study is to identify factors that influencing credit utilization and repayment performance of household farmers The study was focused only to formal agricultural and non agricultural credit activities such as dairy cows, oxen fattening, sheep& goats and petty trade which are provided by food security project in the form of revolving loan. Accordingly, the study was conducted in six sample cooperatives and 156 randomly selected households were borrowers of loan from food security source. The study was focused in credit provided from 2005-2008.

1.9 Organization of the Thesis

The thesis is organized as follows. Chapter one presents background of the study, introduction, and statement of the problem, significant of the study, purpose of the study, objective of the study, research questions, research hypothesis, and scope of the study. Chapter two presents review of literature that includes the need for credit, the role of cooperatives, definitions of concepts overview of the financial system in Ethiopia and empirical studies on loan repayment performance. Chapter three presents the research methodologies employed in the study. Results obtained are presented and discussed in detail in chapter four. Finally, chapter five presentsô summary and policy implications of the research.

Chapter Two

Literature review

2.1 Concepts and Definition

2.1.1 The Need for Credit

Credit is the key input in every development program; this is particularly true for rural development because so long as sufficient credit is not provided to the development programs of poor sections of the society, the goal of development cannot be achieved. Access to capital in the form of either accumulated savings or a capital market is necessary in financing the adoption of many new agricultural technologies (Feder et al., 1985).

The importance of credit facilities to smallholders of less developed countries has been underlined by several authors (Adams and Graham, 1981; FAO, 1996; Gonzalez-Vega, 1977; Pischke, 1980). Governments of less developed countries and aid agencies have extended a large amount of money in the form of agricultural loans. The motivation has been the belief that loans are an essential part of various input packages that are prescribed as part of agricultural investment projects designed to introduce modern technologies and thus stimulate change and growth in agriculture.

According to Foder (1985) as quoted in Belay (2002) credit is the key input in every development program; this is particularly true for rural development because, so long as sufficient credit is not provided to the development programs of poor sections of the society, the goal of development cannot be achieved. Access to capital in the form of either accumulated savings or a capital market is necessary in financing the adoption of new agricultural technologies.

Studies undertaken in Ethiopia show that credit provision to small farmers increases their productivity and improves their standard of living. For instance, Assefa (1987) reported

the need for the expansion of rural credit to all areas of the country. Likewise, Berhanu (1993) and Getachew (1993) pointed out the need for agricultural credit to increase productivity and accelerate adoption rates.

Generally, credit removes a financial constraint and helps accelerate the adoption of new technologies, increases productivity, and improves national and personal incomes. In addition, it constitutes an integral part of the process of commercialization of the rural economy and a convenient means of redressing rural poverty (MOA, 1995).

2.1.2Role of Cooperatives in Agricultural Development and Poverty Redaction

According to US Department of Agriculture (2002), Cooperatives are user-driven businesses that have contributed greatly to the development of one of the worlds most productive and scientific-based agricultural systems. They have played an important role in strengthening market access and competitive returns for independent farm operators during the 20th century. They adapted their operations to agricultural technological innovations, such as the use of fertilizers, plant and livestock breeding, agricultural mechanization, electricity and other new sources of energy, and to new information systems.

A true cooperative is defined as a business voluntarily organized, operating at cost which is owned, capitalized and controlled by a member patrons, sharing risks and benefits proportionally on their participation. Cooperatives may render at least four valuable service at capitalistic system of which they are a part: 1) enhance private property, 2) preserve market competition, 3) retain profit motive and 4) maintain and strengthen the individual consumer and entrepreneur. The primary purpose of cooperatives is to make a profit for its patrons or users of the cooperative, not for the service. A contractual arrangement between the cooperative and the member patrons requires that all margins above the cost of production be returned to the member patrons in proportion to their business with the cooperatives Roy, 1964 (cited in Zemen, 2005).

Cooperatives are not only performing the above-mentioned duties, but also serve as financial institutions that provide credit to the smallholders. Cooperatives also help farmers to increase their net income, through finding good market for their product and by supplying agricultural inputs and services needed in day-to-day operations. Therefore, farmers look their cooperatives to increase their bargaining power in the market place for their product, and to provide a large and growing number of general farm services. Among different services that the cooperatives provide to its members, advancing credit to the members at appropriate amount and time is the major one (Zemen, 2005).

Dagnew et.al (2009) As Agricultural continues to be an extremely important sector to the Ethiopian economy, the cooperative system, as one of its main pillars providing vital support services, is crucial for the transformation of Agricultural sector. It is visible at all stages of the agricultural production chain- production, processing, marketing and credit. Cooperatives can play active role in the filed of banking, input provision, agro-processing, storage, in facilitating input and out put marketing, dairy and many other social and economic activities and also play an important role in rural finance intermediation .it considers micro-finance as a tool to fight poverty as reflected in the countryôs poverty reduction programs, rural development strategy, industrial policy as well as food security programs

2.1.3Cooperative movement in Ethiopia

According to Amare (2005), Cooperation is the way of life of Ethiopians and has a long year of experience. This cooperation may be cultural or religious organizations that make the population a close tie. For example, *iddir* /focuses on funeral celebration/, *ikuib* /which helps for saving money and self help to the members/, and *wefera* / which is focused on the cooperation on labor peak times like in the time of harvest, wedding etc./.

However, a modern cooperative in Ethiopia was started at the time of emperor Hileselasie first in 1961. During this time the first cooperative legal action was made and it is known by Decree number 44/1961. The second attempt towards legal cooperatives was in 1964.

The first cooperative organization legal proclamation known as proclamation number 241/1964 was declared. Based on this proclamation 158 cooperatives were established with 33, 400 members and 9, 970, 600 Birr total capital.

In 1974 Emperor Haileselasie government fall and was replaced by a socialist type of government called Derge regime. The Derge government proclaimed cooperative proclamation in 1978, and it is called proclamation number 138/1978. During which, there were 10,524 different types of cooperatives with 4,529,259 members and combined capital of Birr 465,467,428 throughout the country. From these cooperatives 80% were rural cooperatives.

Currently in Ethiopia, cooperatives are taken as a key organizational form in combating poverty social exclusion through local development initiatives. According to the federal cooperative agency reported (2007), currently, there are 25,000 cooperatives in Ethiopia (about 22 percent types of cooperatives engaged in different sector). Although there are urban cooperatives (mostly credit union and handcrafts producers) over18 percent are rural and agriculturally base. Cooperatives are organized in to approximately 143 cooperative unions.

2.1.4 Rural financial institutions in Ethiopia

Rural credit service

As cited by David .J. Spielman (2007), beginning in 1994, regional governments in Ethiopia used a 100 percent credit grantee scheme to stimulate the uptake of the Participatory Demonstration and Training Extension System (PADETES) improved seed, fertilizer, packages. Under this system, about 90 percent of fertilizer was delivered on credit at below market interest rate, displacing what had largely been retail sales from the private sector (including a substantial share on cash bases). In order to finance the packages, credit is extended to farmers by the state owned commercial bank of Ethiopia , through cooperatives, local government offices, and more recently, Micro finance institutions (MFIs) and cooperative bank. Cooperatives have gradually assumed part of the guaranteed credit program, which had reached some four million farmers with guaranteed credit of nearly 70 million Birr in recent years. The financial products on

offer, and their associated interest rates, are generally limited to seed and fertilizer purchases, animal fattening, beekeeping, and several other recognized investments.

2.2 Evolution of Formal financial institutions in Ethiopia

In Ethiopia formal financial institutions started before 1955 E.C. Here we can categorize evolution of formal rural credit services by three period of times; i.e. rural credit in Ethiopia before 1975, during the Derge period and after Derge regime

2.2.1 Agricultural credit before 1975

As quoted by Amare (2006), the present banking systems and formal credits structure can be traced back to 1905 when the National Bank of Egypt established the Bank of Abyssinia, the first bank in Ethiopia. The Bank of Abyssinia was liquidated by the imperial decree of August 29, 1931 and was replaced by the Bank of Ethiopia with 60% of the capital owned by the government and 40% by the general public. The Bank of Ethiopia was also closed in 1935 following the Italian invasion, and Ethiopia had no banking system of its own until 1942 when the State Bank of Ethiopia, authorized by the imperial charter, was established with a capital of 1 million Maria Theresa dollars, fully subscribed by the Ministry of Finance.

Following the creation of the Ministry of Agriculture in 1943 the Agricultural Bank of Ethiopia was established to accelerate agricultural development by assisting small landholders whose farms had been devastated during the Italian occupation through loans for purchase of seeds, livestock and implements and to repair or reconstruct their homes and farm buildings (Assefa, 1987). Public banks were supposed to mobilize resources and channel them in accordance with the Second Five years Development Plan. Flow of bank credit the Plan, which identified (i) agriculture as the leading economic activity, and (ii) mining, manufacturing and power as ñthe most propulsive sectorsò. The Plan made a distinction between credit for investment and current transactions and gave priority in investment credits to ñdirectly productiveò economic activities. The Plan also allowed for interest rate discrimination between borrowers favoring businesses that are in conformity with the Plan. Credit access was not to be discriminated by ownership. Instead, the Plan explicitly recognized the private and public sectors as equally important. Regarding

agricultural finance, the share of agriculture reflected the importance attached to it in the Plan. Subsistence and large-scale and mechanized agriculture together were to receive about *half* of the bank credit. S*ubsistence* agriculture was to be transformed through (a) the introduction of improved tools and implements, modern techniques, and better seeds; (b) credit, price and tax policies; and (c) land reform and agricultural services (Assefa, 2004).

Accordingly, farmers were to be assisted to produce more marketable surpluses, and thereby develop the subsistence agricultural sector into a monetized one. Credit for farm tools and implements were to be extended by the Development Bank of Ethiopia not directly but through the then Grain Corporation or Farmersô Cooperatives. These institutions were to receive credit funds and then buy the implements and supply them to farmers on credit (to be repaid in kind) or lease or sell them on credit if they are expensive - such as selectors, threshing machines, winnowers, etc. (to be repaid in cash). It was explicitly stated that credit was to be provided only in goods and services the reason being to ensure that it is used only for productive purposes. These practices were expected to raise production as a result of rapid application of efficient implements and lead to commercialization of peasant agriculture due to increased marketable agricultural output. Priority for credit among farmers was to be determined by the co-operatives with advice from extension agents.

Banks were also to extend credit to commercial farms for modern tools, fattening, etc. and fishing co-operatives at favorable terms. High collateral as high as 200% of the loan, mainly in the form of real property and machinery, and guarantor requirements, in the face of widespread tenancy, land title problems e.g. communal land, *rist* system, etc., proved to be the major hindrances of the total DBE loans disbursed during 1951-69, only 42 per cent went to agriculture, of which small farmers received only 7.5 per cent. The successor of Development Bank of Ethiopia (DBE),the Agricultural Industrial Development Bank (AIDB) whose objective, among others, was to mobilize funds and extend medium- and long-term agricultural credit, did not do a better job in terms of reaching farmers with credit either. In fact, its credit policy disqualified peasant farmers

in areas away from the main road, without many borrowers, etc.; required property collateral (which should be insured at the borrowers expense), ranging 100 to 200%, and/or personal guarantor; and required borrower farmers to sell their output to its subsidiary at fixed prices as a means of enforcing repayment (Assefa, 1987).The implication of these on peasant farmersô credit access is clear. While the share of agriculture in AIDB total credit during 1970/71-74/75 was high, averaging about 65 per cent, peasant farmers did not benefit much. It mainly went to dairy development projects, large farmers, co-operatives of commercial farmers.

The comprehensive and minimum Agricultural Extension package programs, which were intended to support small farmers by, among other things, organizing them in a way that makes it easier and less costly for the AIDB to provide credit, did not achieve much in terms of reaching small farmers partly due to the stringent requirements involved such as high down payment (25 to 75%), two reputable guarantors (one of them the landlord in case of tenant borrowers), and signed lease agreement and partly due to incentive problems associated with the share cropping arrangement that prevailed and marketing problems. Just like what happened in most credit programs of other countries, benefits mainly accrued to the non-target groups (landlords, large landowners/big cultivators, merchants, etc.). Overall, the extent of exclusion was well recognized by the AIDB board so much so that in 1974 it decided to introduce a small farmers credit program on pilot basis but was not implemented as it was overtaken by events of the revolution Tesfaye, 1993, as cited by (Amare,2006).

2.2.2Agricultural credit in the Derge period

After the fall of Emperor Haile Silassie government, the financial system in Ethiopia was nationalized and restructured based on the 1976 Banking Law. The credit policy was geared towards the overall policy of the countryôs centralized economic management. All elements of financial repression existed during this period in their severe form: controls on financial prices (i.e. interest rates and exchange rates) and restrictions/control on new entry into the sector as well as on the activities and portfolios existing financial institutions. Interest rates on loans to different economic and social sectors were

administratively fixed. The rate structure bears little relationship with the opportunity cost of capital or the rate of inflation. All financial institutions were publicly owned and entry was banned, thereby establishing a public monopoly of the financial sector. Credit policy gave absolute priority to the socialized sector public enterprises, state farms and cooperatives. Loans and advances by borrowing institutions over the ten year period between 1981 and 1990 show that on average the government sector took 36.4% of the total, while 50.3% went to public enterprises and the private sectorôs share was only 8.3% of the total loans and advances made by the banking system during the period.

More than 89 per cent of AIDB agricultural loans went to state farms while the rest went to agricultural co-operatives, with the private peasant sector receiving negligible share. Discrimination against the private sector was not limited to credit access. The interest rate schedule explicitly discriminated against the private sector. The NBE set lending rates ranging between 4.5 ï 9.5%, depending on the type of ownership and sector.

In many instances, banks have been directed by the NBE to lend for nonviable investments in the public sector. As a result, most of the funds disbursed to the public enterprises, particularly state farms, have remained uncollected, leaving the banks with low rate of growth of capital and reserves. Among the financial institutions, the AIDB suffered serious capital depletion, with its net capital becoming negative by the end of the 1990 fiscal year. Repayment problem of the AIDB was so severe (highest 68% in 1988 and lowest of 11% in 1993) that it had to terminate its agricultural inputs loans to rural households (Wolday, 2003) just as its predecessor, the Development Bank of Ethiopia (DBE), did in 1961. Therefore, the outcome with regard to reaching small rural borrowers with financial services was disappointing both during the Imperial and Derge regimes. Within the agricultural sector, registered FMSCs and producersô cooperatives were eligible for bank credit except for agricultural input loans. Lack of registration of these cooperatives was the main impediment to the expansion of credit. For instance, as of May 1990, the percentage of registered SCs was only 48, while that of the producersô cooperatives was only 14. So, the chance of getting credit by small producers was very low. This is evident from the amount of rural credit that went to the peasant sector, out of

the overall supply of rural credit through both AIDB and CBE during the period 1982 ï 1992 only Birr 792 million (9%) went to the peasant sector. Considering the large number of rural population, the size of land under cultivation and the demand for credit, the volume of loan extended to this sector is insignificant. Credit delivery systems have been insufficient to serve the rural people.

2.2.3Agricultural credit at present

After the fall of Derge regime, Ethiopia has followed free market economy, which advocates financial liberalization. Financial liberalization is important component of a successful development strategy. Both economic theory and practical experience suggest that financial liberalization can stimulate economic development.

Financial liberalization in Ethiopia began at the end of 1992. The financial reform undertaken in Ethiopia include elimination of priority access to credit, interest rate liberalization, restructuring and introduction of profitability criteria, reduced direct government control on financial intermediaries and limits bank loans to the government, enhancement of the supervisory, regulatory and legal infrastructure of the NBE, allowing private financial intermediaries through new entry of domestic private intermediaries (rather than privatization of the existing ones) and introduction of treasury bills auction markets. Prior to 1992, the interest rate charged to farmersô cooperatives was 5%, which is below the rate of savings deposit (6%). Financial institutions were obliged to pay interest margin on deposits from their own sources. Lending rates that were between 4.5 and 9.5% were raised to 11-15% depending on the sector until September 1994.

Discrimination of credit access and interest rates by type of ownership (i.e. between state owned enterprises, cooperatives and private firms) was eliminated. Sect oral interest rates discrimination was reduced and domestic establishment of private financial institutions was allowed and encouraged through proclamation number 29/1992. Since January 1995, the NBE switched to a policy of floors on deposits and ceiling*s* on lending rates, allowing banks to set interest rates. The NBE revised the floor for saving deposits downwards to 3% from 6% in 2001/02 with an intention of encouraging investment and boost economic

activity. Lending rates quickly followed suit as the minimum-lending rate changed by commercial banks went down from 10.5% to 7.5% in the same period.

Banks are also decentralizing loan decision making in order to reduce transaction costs of borrowing and reducing screening hence transaction costs of lending. Entry restrictions into banking were lifted for domestic banks. Entry rules and guidelines have been drawn. The lending approaches of banks to target beneficiaries could be both a direct type and a two-tier system. The direct type is in which the Bank extends credit directly to the end user. This could be an individual person or organization such as cooperatives, government or private enterprises, which have legal entity. In the two-tier approach, the Bank transfers its financial resources to end users through other bodies such as cooperatives and peasant associations. In the case of the first type, the credit beneficiaries enter loan agreements with the bank and are responsible for repayment of the borrowed loan, whereas in the case of the latter other intermediaries such as cooperatives or associations sign a loan contract with the bank and channel the borrowed fund to their members or end users.

In the case of rural Ethiopia, regional governments act as intermediaries between banks and farmers. These governments use their federally allocated budget as collateral to borrow from banks and lend these funds to farmers for the purchase of agricultural inputs. This procedure has enabled banks to lend a great deal of money to farmers. Nevertheless, there have been cases of default, which have necessitated repayment out of the budget allocations of the regional administrations. However, the inability of the formal financial sector to provide adequate financial services to small farmers and the poor in general continued even after the reform.

As compared to other economic sectors the share of agricultural sector in the total credit disbursed by the banks has been continued to be marginal. For instance, the share of agriculture in the total credit disbursed between 1991/92 and 1997/98 has only been 14.7%, while domestic trade had 32.2% and industry 13.2%. Recently the share of agricultural credit stagnated at around 16% and never exceeded 19% of the total credit

disbursed. In addition, it is believed that almost all of the agricultural credit is of short-term nature, which will have little impact on long-term investment and transformation of agriculture. The financial resource that flows to the sector is in general low when compared to the sectorôs actual and expected contribution to the economy growth in agricultural credit versus non-agricultural credit (Assefa, 2004).

The absence of an effective peasant institution for credit delivery is the other major problem associated with the existing credit system in Ethiopia. A typical service cooperative has over 5 to 6 member peasant association or over 1000 member households. It is simply too large to provide effective screening of borrowers, identify genuine defaulters, generate reliable demand information, and/or exert any form of peer pressure on members to make timely repayment of debts. At present, local community participation in screening borrowers and filtering genuine defaulter is minimal. The authorities and the leaders of FMSCs have no objective means of assessing the extent of crop loss. Weak cooperatives are also the main reason for the government intervention in the credit market and diversion of valuable extension time to administrative affairs. Hence, the effort to restructure FMSCs into smaller groups needs to be stepped up (Mulat, *et al*, 1998).

According to Wolday,(2007), The capacities of Formal financial institutions are conventional banking sector in Ethiopia to serve the needs of the poor is very weak. As June 2005, the commercial bank of Ethiopia (CBE), Development Bank of Ethiopia, (DBE) and construction and business bank had only 174, 32 and 26 branches in the whole country respectively. The private banks together had 152 branches (including the cooperative bank of Oromia).the newly established Cooperative Bank of Oromia had 6 branches. Moreover, most of the branches of these financial institutions are concentrated in relatively large towns and cities even if banks in these Woredas the poor have limited access to finance.

2.3 Informal financial institutions

In Ethiopia the poor have low income that results in their low levels of investment. This in turn leads to low levels of production and productivity as well as low income. Access to institutional credit that contributes to an increase in investment is very limited countrywide. The majority of the poor are therefore left with access to financial services that are limited to informal channels such as money lenders, iquib ,idder, friends , relatives and traders Bezabeh et.el 2005, quoted by Wolday Amaha ,(2008).the share of informal finance in terms of borrowers and loan size estimated to reach 69 percent and 61 percent respectively . About 4.8 percent who took loans from informal lenders to buy oxen accounted for 6.3% of the total loans they took from the informal lenders.

As Wolday Amaha, (2008) studies shows among the borrowers from the informal source, 35 percent borrowed from friends and relatives, 48 percent from private lenders, 15 percent from idder and 2 percent from iqqib . Only 3 percent of them borrowers borrowed from both relatives and other informal sources moreover 10 percent of the borrowers borrowed from multiple informal financial sources. Informal lenders are better equipped with mechanisms for enforcing loan contract and relatively more flexible loan terms; as a result of which they have high loan recovery rates. However the interest rates for such loans are very high and the government, through the support of cooperatives and MIFs is making efforts to restrain their roles.

According to Zemen (2005), Village merchants, local moneylenders, friends and relatives are the most common sources of informal credit in rural Ethiopia. Prior to the 1975 land reform, for instance, local moneylenders had often been urban residents, small businessmen or landlords who advanced money to those who needed credit. In addition to earning interest income, merchants used credit as regular means of enhancing their trading activities. Provision of credit served them as a mechanism to maintain market share local moneylenders who were replaced by other peasants, friends and relatives. The Amhara region socio economic survey of rural households of 2003, confirmed that informal credit sources provided 65% of rural credit needs of the region. The survey adds that friends and relatives provided 44% while local merchants and moneylenders

provided 21%. The same Survey showed that of the total respondents about 23.2% borrowed for the purchase of agricultural inputs, 6.9% for trade, 51.4% for household consumption, 15.2% for the purchase of farm animals and 0.8% for handicrafts. Most of the informal financial sources like local moneylenders (*arata abedaris*) and relatives/ friends were lending for consumption.

2.4 Definitions

Credit**: -** is defined as the power or ability to obtain goods and services in exchange for a promise to pay for them later (Beckman and Foster, 1969). In similar manner credit is the power or ability to obtain money by the borrowing process, in return for a promise to repay the obligation in the future.

Credit is defined as the ability to sell debt. In these sense banks do not extend credit but the borrowers does; he exchanges credit for cash. Viewed in this way, credit is a commodity which a person or firm possesses (Hopkin, 1961)

Agricultural credit is a crucial input for agricultural development. For agriculture in stage of transition, credit is an instrument that can make change possible with a minimum of social and physical loss (Brinser and Richard, 1948).

Loan Repayment:-An arrangement in which a lender gives money or property to a borrower and the borrower agrees to return the property or repay the money, usually along with interest, at some future point(s) in time. Usually, there is a predetermined time for repaying a loan, and, generally the lender has to bear the risk that the borrower may not repay a loan (though modern capital markets have developed many ways of managing this risk).

Cooperative: - In 1995, The International Cooperative alliance (ICA), the Apex organization that represents cooperatives World wide defined a cooperative as:ô an autonomous association of persons united voluntarily to meet their common economic, social and cultural needs and aspirations through a jointly owned and democratically controlled enterprise.õõ(Zerihun Alemayehu 2003).

This definition emphasizes the cooperatives are independent of government and not owned by one other than members. Members are united voluntarily, and should be free to

join or leave. Cooperatives are distinguished from shareholding firms by their democratic nature, with voting rights being assigned by person rather than by size of shareholding.
Multi-Purpose Cooperative Societies: multipurpose cooperatives unlike single purpose cooperative undertake diversified activities. Multipurpose cooperatives, which functions on the basis of a fully integrated framework of activities, planned according to memberôs requirements identified at the grass root level, taking the socio-economic life of the farmer members in its totality.

Rural saving and credit cooperatives: - Rural saving and credit cooperatives are voluntary financial organizations owned and operated by members. Their purpose is to encourage savings by creating local deposit activities and then using the pooled funds to make loans for productive, consumer or social purposes to their members. Rural savings and credit cooperatives operate as farmersô grassroots organizations, aimed usually at meeting the seasonal financial needs of their members, which other financial institutions do not satisfy (FAO, 2001).

Default and non default; According to Lekshim *et al*. (1998), the non-defaulters are those who repaid the loan in due date and the defaulters are those who did not repay the loan within the due date. Therefore, this definition is used as a base for differentiating the two groups.

Food security is attached when all people, at all time have the physical and economical access to sufficient safe and nutritious food to healthy and active body. Household food security, in turn means adequate access by the household to amounts of food of the right quality to safety the dietary needs of all members through the year .from this definition, the core concept has been identified as Adequacy of food supply or availability, sustainability of supply with out fluctuation or shortages from season to season or from year to year, accessibility to food to affordability, quality and safe food. (Maxwell, 1992)

2.5 Empirical Studies in other countries

Credit utilization and repayment performance is affected by a number of factors, some of which are believed to negatively influence repayment while others have positive impact. Different studies have been carried out concerning credit utilization and repayment

performance of borrowers in various countries by different authors. In what follows, the findings of studies on credit utilization and repayment performance was presented.

2.5.1 Loan Repayment

Singh et al., (1985) in their study on repayment performance of borrowers in Punjab indicated that the extent of relative loan default was higher in case of large farmers as compared to other categories of borrowers in spite of their better capacity to liquidate their short, medium and long term loans. The study also reported that, on the average, the defaulters in almost all the categories of farmers had taken more loans than non-defaulter from all the financial institutions except commercial banks. The economic and social conditions like households and farm assets, consumption expenditure and repaying capacity, which affect the repayment of loans, were found to be favorable to defaulters.

Jama and Kulundu (1992) in their study on smallholder farmers' credit repayment performance in Kenya considered some variables which they thought were related to loan repayment performance and found that loan diversion, farm income, farmers' attitude toward loan repayment, proper amount of purchased farm inputs and source of income from farming activity had statistically significant effect on loan repayment performance. They also reported that the proportion of loan funds diverted to non-intended purposes was positively related to the proportion of arrears on loans and was significant at 1% probability level. In addition, late loan issuing and inadequate supervision and advice to farmers were positively related to the proportion of loan diverted and were statistically significant at 1% and 5% probability levels, respectively.

Matin (1997) in his study on the loan repayment performance of borrowers in Bangladesh obtained a significant positive relationship between householdôs asset/income position/ and its loan default status. In his analysis, he related this situation to a very strong demonstration effect where borrowers having relatively small loan sizes behave in the same way as those who have larger loans. The education status of the household was reported to have strong negative effect on default status irrespective of the householdôs income position. The total operated land holding of the household was the other variable,

which was negatively associated with default after a certain level. It was also indicated that housing loan increases default probability by about 22%.

Khandker et al., (1995) based on their study of Grameen Bank's micro credit operation at branch level reported that loan default is not completely a result of borrower's erratic behavior. Rather, factors like roads, electrification, educational infrastructure, borrower's age, incentives, etc., were reported to have a strong bearing on repayment performance.

Kashuliza (1993) reported a positive and significant relationship between borrowers' attitude to repayment and repayment performance based on a case study in Tanzania. He also reported a positive relationship between repayment and farm income and a negative but statistically insignificant relationship between household size and repayment performance.

Kulundu (1990) in his study on Kenyan small holder farmers using cross-sectional data found that loan diversion, use of purchased farm inputs, farm income and attitudes towards repayment had statistically significant impact on loan recovery; whereas crop performance, off-farm income and farmers education proved to have statistically insignificant influence on loan repayment. Regarding loan diversion, his results showed that inadequate supervision and technical support as well as delay in loan delivery had significant influence on loan repayment.

Empirical study made in Guyana by Hunte (1996) using logistic model showed that certain factors such as activities in fishing, male borrowers in food crops and livestock credit experience and sugar cane production resulted in low default risks, minimum or low credit rationing (giving nearly the amount the borrower requested or demanded) and high repayment performance. Alternatively, other factors, such as extended grace period in loan contracts and long processing times led to high default risk and low repayment. Moreover, the result clearly showed that wealthy borrowers exhibited poor repayment performance.

The study made by Kuhn and Darroch (1999) in South Africa, using a multinomial logit model associating loan default to various factors, indicated that clients with larger loans were less likely to default for such loans tended to be associated with more (verifiable) collateral, lower administration costs per unit of credit and probably better quality information on potential investment returns.

2.6 Empirical Studies in the Ethiopian Context

Assefa *et al.* (2005), the Derg regime reorganized the financial sector in a manner that reflects its declared communist ideology and its economic thinking as stated in the Declaration on economic policy of socialist Ethiopia. The result was marginalization of the private sector, forcing to depend on self-financing and informal credit. The share in domestic credit outstanding during 1986-90 of the private sector and cooperatives averaged 4.7 and 1.1 per cents, respectively. More than 89 per cent of AIDB agricultural loans went to state farms while the rest went to agricultural cooperatives, with the private peasant sector receiving negligible share. Moreover, NGO credit schemes generally disregarded domestic savings mobilization, mainly depending on donor funds

Samson (2002), the reasons in which the households failed to get benefit from credit are due to miss-utilization of credit (17.5%), natural disasters (32.7 %), market problems (23.9%) and low output or profit gained from the business (21.8%) where as the other 4.1 percent are due to various reasons.

Zemen (2005), there are four important factors which affect the borrowersô timely repayment of their debts in the region. These are the size of cultivated land, loan diversion behavior, membership condition and amount of other credit borrowed

G/hiwote (2006) has preformed his research using logit regression model and showed that five variables were significant to affect borrowersô loan repayment performance. These variables include: educational status of the sample household, family size of the household, duration of cooperative membership of the household, total size and use of land holding of the household and amount of money borrowed by the household. Except

the size of land holding, all the significant explanatory variables affect the loan repayment performance smallholders positively.

Bekele (2001), has summarized his findings that are obtained using logit model as follows. The results showed that individuals who took larger loan had better repayment performance than those who took smaller loans. He argues that this result indicates that individualôs loan application were carefully evaluated, sized and approved by the local lenders. Thus, local screening groups should be strengthened and encouraged to set a uniform minimum standard for screening loan applications. Group lending is also another way of acquiring information on credit worthiness that is critical in reducing default risks.

Tefera (2004) has performed his research using Tobit model and he stated that, repayment rates of informal credit were found to be far superior to those of the formal credit. Higher repayment performance in non-formal credit could be associated with the application of social pressure, flexible repayment plan and timely availability of credit in right amount. The potential threat of the borrowerôs reputation with in the village or community in the event of default is by itself an adequate deterrent against default.

Ambes (2003), the coefficients of elasticity relating to area cultivated, number of draft oxen, agricultural credit, contact of DA and total livestock holding were highly significant at one per cent level, thus indicating that one per cent increase in each over the mean level use would increase gross farm income of the farmers by 0.554 percent, 0.421 percent, 0.039 percent, 0.237 percent and 0.386 per cent, respectively. The coefficient for family labors was significant at 10 per cent but negative. This was, probably due to excess availability and usage of labors by small farmers.

Hailesselasse (2008), six variables were significant to affect borrowersô loan repayment performance. These variables include: educational status of the sample household, credit experience of the household head, appropriateness of the repayment period, livestock income of the household, off-farm and non-farm income of the households and amount of input credit borrowed by the household. Except the suggestion of respondents for the

appropriateness of repayment period, all the significant explanatory Variables affect the loan repayment performance smallholders positively.

2.6.1Credit utilization

Agricultural credit enhances productivity and promotes standard of living by breaking vicious cycle of poverty of small scale farmers. Adegeye and Ditto (1985), described agricultural credit as the process of obtaining control over the use of money, goods and services in the present in exchange for a promise to repay at a future date. The crucial role of credit in agricultural production and development can also be appraised from the perspective of the quantity of problems emanating from the lack of it. In modern farming business in Nigeria, provision of agricultural credit is not enough but **efficient use** of such credit has become an important factor in order to increase productivity. Ogunfowora et al. (1972) reported that credit is not only needed for farming purposes, but also for family and consumption expenses; especially during the off season period. Credit has also been discovered to be a major constraint on the intensification of both large and small scale Farming (Von-Prisckieke 1986). The absence of rural banks or their unwillingness to meet credit need of rural farmers largely account for the wide influence of informal lending institutions on agricultural production in the rural areas. Abe (1982) reported that non-institutional creditors accounts for 70% of the total credits received by Nigerian farming population. However, with the present situation in Nigeria, these sources could hardly meet the increasing demand for credit by farmers.

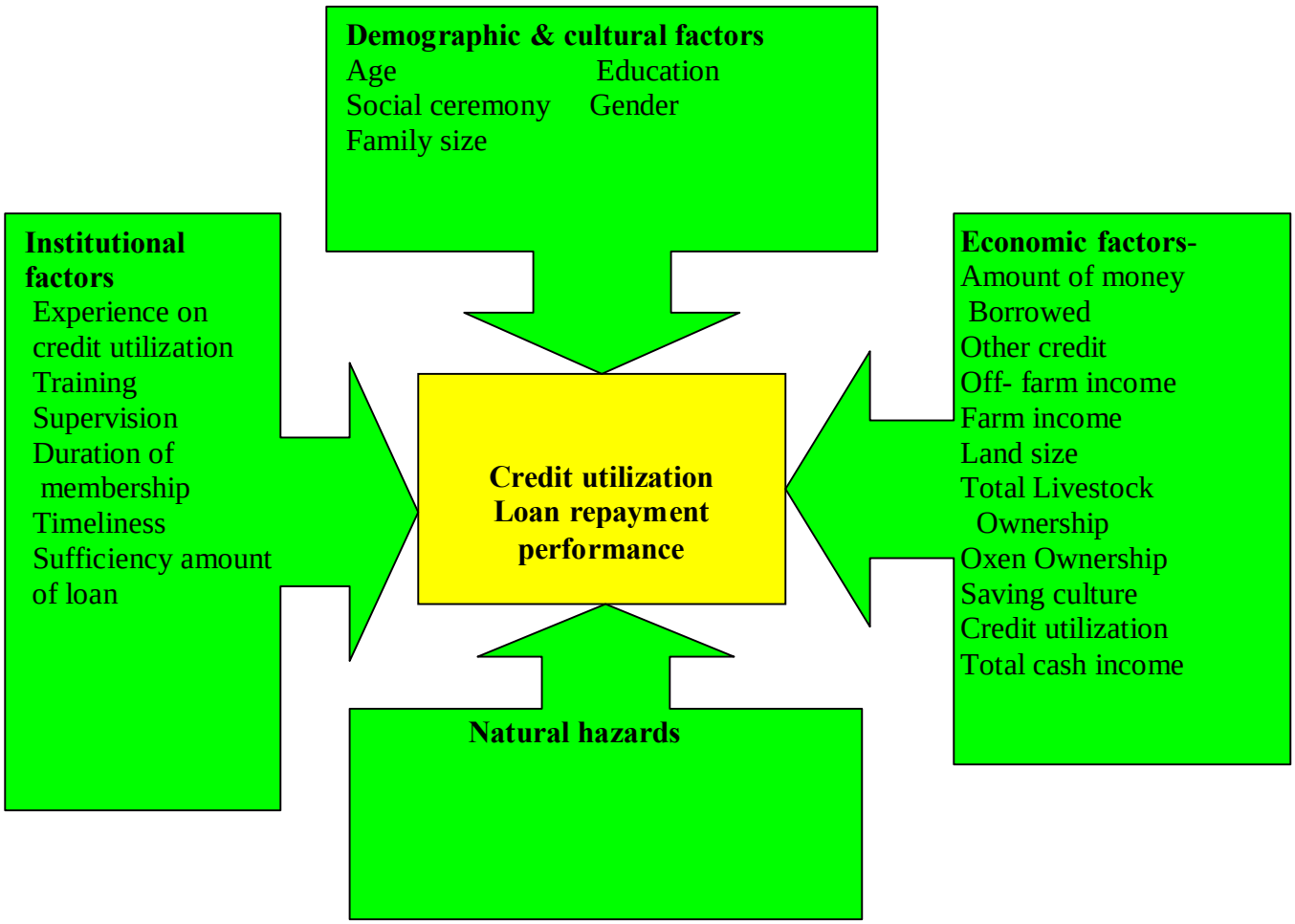
Samson (2002), agricultural credit input, therefore, is a must for poor farmers to utilize agricultural input at proper amount.. Improving farmersô access to adequate credit accelerates the uptake of advanced technologies. Though in most cases it is difficult to single out quantitatively the benefits gained as the result of credit utilization, the survey has attempted to get the perception of the rural households towards the benefit of credit utilization. This is due to the fact that the households change or progress is brought by so many factors jointly. As the survey result clearly indicated that about 80.5 percent of the respondents replied that they have been enjoyed the benefit of credit

Therefore, for the successful utilization of borrowed money and timely repayment of the credit, lenders are also expected to train the borrowers about the proper utilization of agricultural credit. Since the system of agricultural credit is similar throughout the country, many authors have studied credit utilization and loan repayment performance of smallholders using Multiple Linear Discriminates Analysis or logistic model. Their finding is more or less the same

2.7 Miss utilization

Regarding to miss utilization , borrower who allocated his/her agricultural credit for different purposes other than the intended purpose would be forced to use an input below the recommended rate, therefore, he/she cannot attain the expected output level to fulfill his/her obligation. Membership condition has also found to be one of the best discriminating variables in the analysis. The borrower who is a member of the cooperative is most likely not to be a defaulter. The reason being beyond his/her attitude to belongingness to the cooperatives, his/her daily contact and other economical relations abide him/her not to do so' (Zemen, 2005).

Figure 1 Conceptual frame work



Chapter Three

Materials and methods

This chapter discusses how the research was conducted; the chapter consists of description of the study area, selection of the study area, sampling procedure, and data collection and analysis methods. It also presents the hypothesis developed based on review of literature in chapter two under definitions of variables.

3.1 Description of the study area

The Regional National state of Tigray is one of the 9 states of the Federal Democratic Republic of Ethiopia (FDRE), which is often called the Sudano-Sahelian Region (Bharat, 2004, cited by G/hiwot 2006).The Tigray Region lies in the Northern Ethiopia, extending from $12^0$15ô to 14^0 54ô N and 36^0 27ô to 39^0 59ô E. The Region is bordered with the state of Eritrea in the North, Sudan Republic in the West, Amahara region in the south and Afar Region in the East. The Region covers an area of 80,000 sq .kilometers of landmass, most of which is highland and plateau interspersed with in low laying hills and flat lands with an altitudinal variation ranging between 1500-3000 m.a.s.l.(Kiros,2003). The Region is composed of six administration zones with the total population of 4,314,456 out of which 2,124,853 are males and 2,189,603 females Out of the total population 3,471,733 or 80.50 per cent were estimated rural inhabitants, while 842,723 or 19.50 per cent of the population were estimated urban dwellers (CSA, 2007).

Economy of the region

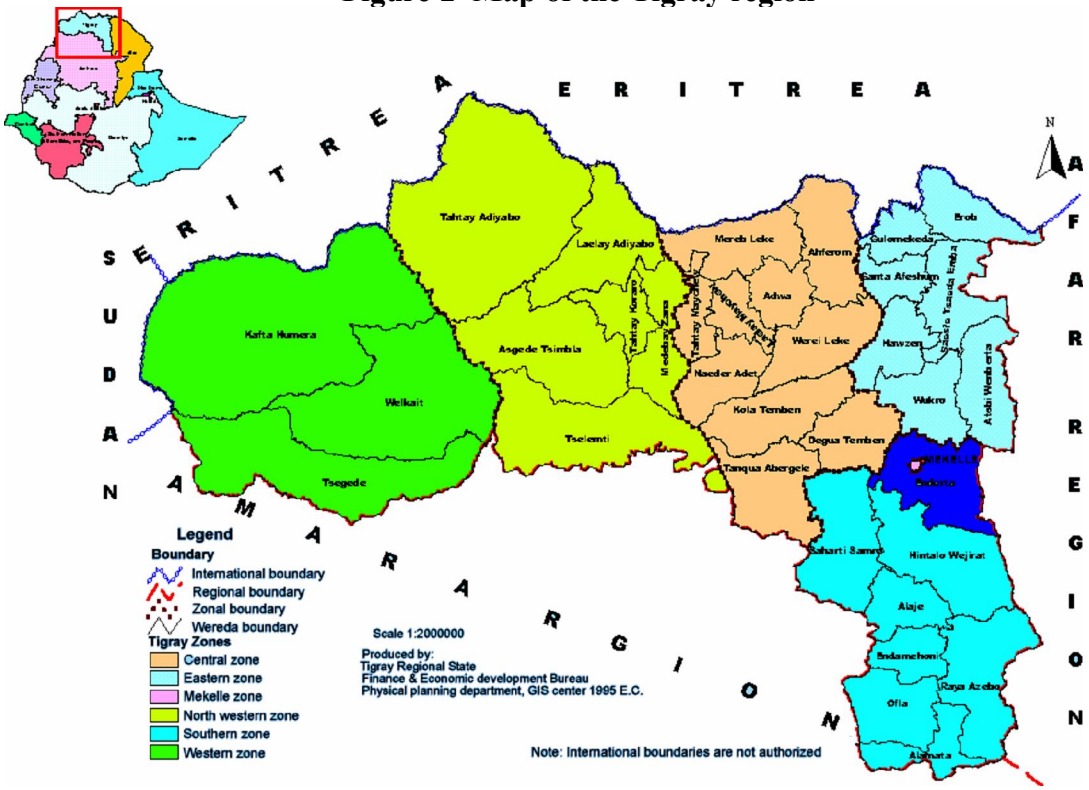
In the Tigray region agriculture is the main economic activity for over 85 percent of the population, supplemented by livestock rearing under mixed-farming system. The average landholding in highlands of the region is less than a hectare (pender at.el 2002, Girmay 2006 as sited in Hailesselasse 2007). According to the federal Democratic republic of Ethiopia central statistics Agency agricultural sample survey (2008), the major Crops in Tigray Region in 2007/08 production year was as follows. These are cereals, pulses, oilseed, root crop, vegetables and fruits. Total numbers of individual householdsô were

2975243; estimated cultivated land in hectare 1762078.65 and 23,941,304.31 different kinds of quintals of production should be harvested

On the other hand Tigray Region one of the Regions with the most livestock in Ethiopia. Livestock production is mainly a secondary activity the major economic role of cattle, particularly oxen, in mixed farming is supplying draft-power for crop production. The role of livestock in terms of food supply is limited to milk and related by-products.

Therefore, based on estimate of Bureau of Agricultural Rural Development (BoARD, 2008), Tigray had a total of 14652397 cattle, 3536241sheep, 6310704 goats 15599 horses, 36777 mules, 1555516 Donkeys, 40014 camels, 9100151 poultry of all species and 696490 beehives.

Figure 2 Map of the Tigray region



Source: - Bureau of Finance and Economic Development (BoFED).

Description of the selected Woreda

The Tigray Region is located in the Northern part of Ethiopia. In the Region there are 36 woredas. Emba Alage woreda is one of the 36 woredas in the Region. The Town of Emba Alaje Woreda, Adishu found to the South of Mekele 85 km far. The study area (southern zone) is located 121 km South of Mekelle. This zone was selected as a study area. Because Emba Alaje Woreda is one of the zones distributes food security loan to farmers for different agricultural activities through cooperatives, and there is a little studies pertaining on credit utilization and loan repayment in this particular Woreda. Emba Alage Woreda is bordered on the south Endamohoni Woreda, on the east Raya Azebo Woreda, on the West Saharti Samre Woreda and on the north Hintalo Wajerat .Woreda. The climatic condition of Alaje Woreda is 30 % of highland (dega), 41 % Intermediate (weinadega) and 29 % Lowlands (kola) and the total coverage area of the Woreda is estimated to be 767.2 KM^2 or 78,720 22 hectares (TNRDP, 2008).

Population of the Woreda

Based on the 2007 housing and population census total population of the woreda were 107,954 out of which 52,840 are males, and 55,114 are females (CSA, 2007), from the total population 100,389 are living in rural areas and 7,565 living in urban area. The population density of the woreda is 140 person / KM^2

Figure 3 : MAP of Alaje Woreda

Status of Cooperatives in the woreda

The above Map shows that the Woreda had 17 Tabias; however at present Emba Alaje woreda consists of 20 Tabias; because three Tabias recently splited into two tabias these are Mailiham and Waereb, Kilma and Mebal and Abnet and Maernet which are not demarked in the map. Currently in Alaje woreda there are 13 MPCs and 1 union with 9 affiliated primary cooperatives, 12 savings and credit cooperatives, 6 construction Cooperatives,9 irrigation cooperatives,1 handcraft cooperative, 1 mining cooperative and 1 dairy Cooperative all of them have attained legal status. In Emba Alaje Woreda agricultural credit input distributes by 12 MPCs and 7 RUSACCOs. The total members of the MPSCs are 15824 and 11457 (72.40%) are males while 4367(27.60%) are females. These cooperatives have 1 hired manager, 9 accountants, 5 shopkeepers 1 store keeper and 1 guard. The total prescribed capital has reached Birr 1,035,903.54 with the fixed capital of Birr 55,125.665.in 2008/09 production year.

Cooperatives are typical service render enterprise in the rural development strategy of the country. Farmers cannot have a strong economic voice without the formation of member-controlled association. Cooperatives are purchase agricultural out puts like grain from relative cooperative unions and wholesalers and sell it to farmers at fair price. In this way they are able to pass by the middlemen and stabilized the market that is apt to exploit the farmers. Hence, from year 2004/05-2008/09 service cooperatives are 1391.27 amounts of quintals of different types of grain with the total Birr of 560674.56, Purchased and distributed to their farmers.

Moreover, they are also engaged in retailing basic consumer goods at reasonable prices. From 2004/05-2008/09 cooperatives sold industrial commodities to their membersô in total 1,016,455 Birr. All multipurpose cooperatives are engaged in the distribution of fertilizers, pesticides and improved seeds to the farmers. Cooperatives are borrowing large amount of money from banks, which they used for promoting credit to their members. The credit extended to member farmers is in cash and in kind such as, fertilizers, pesticides, and improved seeds. Commercial bank against regional government collateral is the main sources of fund for the input credit administered by cooperatives. In the woreda cooperatives distributed more than 4122.68 quintal Dap and 2455.275 quintal urea and 1230.82 qt improved variety seeds in 2003/04. To undertake such input marketing activity the cooperatives provide a total of Birr 2,562,848.03 loan to borrowers.

Besides, from 2004/05-2008/09 total amount of the food security loans birr 8,391,788 was distributed through cooperatives for different agricultural and non agricultural activities to the poorest of the poor, such that buying dairy cow, oxen, shoats and small scale enterprise (petty trade) to enable the poorest of the poor farmersôto build their asset through income generating activities and to alleviate poverty. (Annex table 5) shows that types of animalôs number of animals in kind, number of borrowers and amount of distribution in birr). In general, Cooperatives play a significant role introducing new production systems, changing the traditional way of life of the peasants and improvising basic economic social service such as loan delivery to their members. All these in turn,

are having a positive impact on agricultural development and on the living conditions of the rural population.

Therefore, the vital importance and the positive contribution of cooperative business cannot be overlooked. Cooperatives are the centerpiece in the rural development strategy of the country. The farmers cannot have a strong economic voice without the formation of member-controlled associations.

On the other hand, from year 2006/07 up to year 2008/09 out of the distributed loan by cooperatives; the matured and repaid in the due date are indicated as follows. In 2006/07 matured loan was 406,447 and repaid 410,492 birr, in 2007/08 matured loan was 1,239,086 birr and repaid 752,104 birr, in 2008/09 matured loan was 777,840 birr and repaid 461,728.30 birr. In total the cooperatives managed to collect 1,624,323.65 birr out of the 2,025,573 birr matured loan, Therefore, from the total amount of matured loan only 401,249.35 Birr (19.81%) not yet collected (Annex table IV).

According to the official report of Cooperative agency the reason for defaulting was many, to mention some; borrowers give priority for other financial obligations, some of them assume the loan as donation and drought effect.

Table 1: Multi- purpose cooperatives in Emba Alaje Woreda

S/N	Name of coops	Male	Female	Total	Fixed asset	Current asset	Liability	Capital	Total
1	genet	830	360	1190	1714.88	320576.76	278796.92	43494.92	322291.8
2	F/sweat	796	314	1110	3241	265265.59	224331.54	41175.195	268506.7
3	kilma	837	346	1183	2692.3	1039760.58	789081.5	53271.382	1042352.8
4	B/lekatit	597	389	986	1298.48	526556.83	488761.75	29477.23	516188.93
5	Fana	526	440	966	18744.655	1031395.98	971774.37	78369.447	1050143
6	Marta	404	229	633	0	688144.03	653094.125	35049.9	688144.03
7	selam	1163	437	1600	6343.16	1198846.28	1059118	146072.06	120519.06
8	Z/wedshre	1154	326	1480	10369.5	1395206.07	1333743.25	71831.766	1405575
9	s/weyane	991	360	1351	1237.5	18717.6	14125	5830.1	8431.12
10	w/abeba	1024	291	1315	2424.72	536994.3	311633.522	227785.5	539419.02
11	F/hiwot	1828	518	2346	3366.45	310068.92	346941.29	33503.92	313435.35
12	betmera	687	231	918	1798.87	1271746.3	1030191.23	243257.94	1273443
13	F/kalsi	620	126	746	1894.15	482885.51	458105.48	26784.18	484889.6
	Total	11457	4367	15824	55125.665	9086164.75	7959697.977	1035903.54	8033339.41
14	Saving & credit coop	656	285	941	10433.72	1,810,293	-	123075.25	-

Source: Woreda Cooperative

Agriculture

Mixed farming is the major economic activity in the area more than 85 per cent of the people are living based on agricultural Mixed farming. Crop production and livestock rearing are the major agricultural activities in the wereda. The dominant grown crops are wheat, barley, pea and bean. Among the crop production, Wheat is the major product over other crops. In the addition in the woreda different varieties of vegetables and fruits are grown, such that potato, tomato green paper, banana, guava, papaya, lemon and others Therefore, from the total area of the Woreda the total land uses for different purposes of agricultural activities are as follows. Hence, total cultivated land is 23805 ha, irrigation land 2734.6 ha, closure area, 9801ha, and grazing land 5786.9 ha, forestry 1350 ha, bushes 3500 ha and top hills land 1593.37 ha.

Agricultural facilities of Emba Alaje Woreda the agricultural and rural Development office assigns agricultural extension workers on agricultural fields such as crop production, livestock production; natural resource protection and animal husbandry all are helping the peasant farmers in one way or another.

Livestock population

The livestock sub-sector is one of the components of the integrated farming system in Alaje woreda. Animals are kept as source of milk, meat and draught power. Cattle dung is also an important as of source of manure and fuel. Animals act as an important buffer stock (shock absorber) to purchase grain for compensating the crop failure due to drought and/or prevalence of other. According to the survey results of Tigray national regional state development plan the total number of livestock in Emba Alaje Woreda had 78110 Chattels, 3151 sheep, 23423 goats, 1129 donkeys, 230 mules, 337 horses, 3 camels, 31713 poultry and 10924 beehives(BoFDP, 2008).

Infrastructure and Social Services

Roads: Alaje Woreda is located in southern zone Tigray in the main road high way/ of the capital city of Ethiopia, Addiss ababa and the town is connected with the regional capital city of Mekelle by 85 km paved road and 35 km paved road with zonal town of Maichaw and connected with the sub Woredas bora and dela The distance from Adishu to the sub Woredas are 35 km to bora and 38 km to dela also connected to with dry weather roads.

Education and Health: According to the Planning and Economic Development Office of the Woreda (PEDOW, 2009), Emba Alaje Woreda has totally 56 schools out of these 1 upto grade 8 / primary schools are 42 and the remaining 14 grade 9 up to 12 are secondary schools. In 2009/10 the number of students enrolled in the primary and secondary schools were 27394.The Percentage coverage of commitment was 77.8%.With regarded to health related services in Emba Alaje woreda there are 18 health centers. These health centers covered estimated about 92% population of the Woreda.

.**Market Facility:**

The major market center for the Emba Alaje Woreda is Adishu. In addition relatively big in size markets are located in each sub- Woredas these are bora and dela. The major market center and the sub Woredas connected everywhere in the villages. Both crop and animal products are the main goods supplied by the farmers to the market center and sub-markets. In return, the farmers take home consumable/commodity goods.

3.2 . Method of Data Collection and Analysis

3.2.1 Sampling Design

3.2.1.1 Sampling techniques and Sampling method

Alaje Woreda was selected purposely as it had many advantages. The woreda is one of the food security loan provided through cooperatives and had better data records relatively than the other woredas of Tigray Region, which makes data collection easy with available resources and finally it is convenient to the researcher to investigate the presence of both groups of borrowers i.e. defaulter and non defaulter group. This study employed survey method and probability sampling technique was used.

In this study a multistage random sampling procedure was applied to select representative sample respondents. In the first stage from southern zone of Tigray, Aleje woreda was selected purposively. In the second stage from 12 MPCs and 7 RUSACCOs in the Woreda, 4 MPCs and 2 RUSACCOs were selected randomly which distributes food security loan to their members(i.e., dairy cow, sheep, goat petty trade and fattening).Also, the respondent borrowers were divided into Defaulters and non defaulters, listed from each sample members of Cooperatives. In the third stage in order to select representative sample respondents probability proportionate to size of sample was used (PPS). Accordingly the number of respondents was 78 defaulters and 78 non defaulters.ô The total numbers of respondents were 156. Apart from this sufficient weight was given to each activity while selecting the respondents.

Table 2: Sample of cooperatives, total Borrowers, and proposed sample respondents

Sample cooperatives	***Total Borrowers***	***Number of borrowers in each activities***				***Number of borrowers***		**Total 6% sample Respondents**	
		Dairy cow	Shoats	petty trade	Oxen fattening	DF	NDF	DF	NDF
Fana	429	266	173	65	24	218	211	13	13
Selam	600	584	364	23	3	282	318	18	18
Lemlem Betmera	419	296	159	103	7	129	290	12	12
Genet	230	148	46	17	6	132	110	7	7
Fre Alaje	684	379	191		33	510	110	20	20
Hdnet chelena	285	281	89	1		265	20	8	8
Total	2647	**1954**	**1022**	**209**	**73**	**1536**	**1059**	**78**	**78**

Source: From field survey

NB: DF= Defaulter, NDF= Non-Defaulter, B=Borrower, Resp= Respondent

NOTE: - *In the total borrowers of sample cooperatives and some Agricultural Activities the figure shows over lapping each other .Because the Farmers used the borrowed money for different Activities*.

3.2.1.2 Data Source and Methods of data Collection

This study was used primary and secondary data for the achievement of the stipulated objective. The method of data collection was structure interview method by using interview schedule as a tool for collecting date from 156 sample respondents. In addition, focus group discussions with key informant were held for getting in-depth information for the study. The focused group discussion was carried out with elderly and cooperative committee consists of 5 individuals in each selected sample Cooperatives.

3.2.1.3 Primary Data

The Primary data was collected from the sample household respondents by using structured interview schedule. Since, it was not possible to contact all interviewee by the researcher alone; five enumerators who have the knowledge of the local area were hired and trained about the objectives of the study, the content of the questionnaire and methods of conducting the interviews to the enumerators. Pre-testing of the questionnaire was carried out with the enumerators and some adjustments have been made in the final version of the questionnaire. The investigator was attentively guided and worked with the enumerators throughout the data collection process. The structured interview questioner was developed in English and translated into local language Tigrigna.

3.2.1.4 Secondary Data

In order to supplement the primary data with an additional information, secondary data was gathered from publications, quarterly, semi-annual and annual reports of Cooperatives, Alaje Woreda Cooperative desk and Regional Cooperative promotion Agency, Alaje Woreda food security desk, Regional food security project office, and other relevant organizations. The secondary data was used to understand credit utilization and loan repayment nature of the study area specially food security project loans.

3.3 Method of Data Analysis

The investigator used statistical models and methods to analyze the data. In this study descriptive statistical tool and non-linear statistical/ econometric models was used for the patterns of credit utilization and repayment performance of farmers of cooperatives in Emba Alaje Woreda.

3.3.1 Descriptive Statistics

In order to have clear understanding about the result of the study, it is important to be familiar with demographic and socio-economic characteristics of the sample households. To assess the extent of credit utilization of smallholders, descriptive statistics such as; percentages, mean and standard deviation was applied to both primary and secondary data. Moreover, difference between borrowers (non-defaulter and defaulter) with respect to selected variables was also investigated using t-test and chi-square test.

3.3.2 Non–linear models (logit model)

The objective of the study is to analyze which, how, and how much the hypothesized regresses were affected the credit utilization and repayment performance of farmers of Cooperatives of Emba Alaje Woreda. The dependent variables in this case are a dummy variable or qualitative dichotomous variable which takes the value of 1 if the borrower repays the loan before due date (June 30, 2009) and 0, if not repay in due date and for credit utilization 1 if the borrower properly utilize the loan for production and/or income generating activities otherwise 0, if the borrower mis use the loan for unintended purpose during the year. Explanatory variables included in the study are of both types i.e. binary and continuous depending on the nature of the explanatory variables.

Regarding the dummy dependent variables, there are three different models that one can use: the linear probability model, the logit model and the probit model. The linear discriminate function is closely related to the linear probability model. The coefficients of the discriminate function are just proportional to those of the linear probability model. Thus, there is nothing new in linear discriminate analysis. The linear probability model has the drawback that the predicted values can be outside the permissible interval (0, 1) (Maddala, 2001).

In linear probability model, the dichotomous dependent variable is expressed as a linear Function of the explanatory variables. According to Pindyck and Rubinfled (1981) as cited by Hailesselasse (2007), LPM has frequently been used in econometrics application, especially in the early years, because of its computational simplicity. Nevertheless, since the dependent variable is dummy variable, proceeding with the OLS estimation procedure will result in biased and inconsistent estimates and it has a serious defect in that the estimated probability values can lie outside the normal 0-1 interval.

Due to the inadequacy of the linear probability model, non-linear specification may be more appropriate and the candidate for this will be an S-shaped curve bound in interval 0, 1(Gujarati, 1999). The author suggested that, the S-shaped curves satisfying probability model as those represented by the cumulative logistic function (logit model) and cumulative normal distribution (probit model).

According to Greene (2000), other distributions have been suggested, but the probit and logit models are still the most common frameworks used in econometric applications. The question of which distribution to use is a natural one. The logistic distribution is similar to the normal except in the tails, which are considerably heavier. It more closely resembles a t-distribution with seven degrees of freedom. Therefore, the two distributions tend to give similar probabilities. The logistic distribution tends to give larger probabilities to y=0, than the normal distribution. According to Maddala (2001), the usual logit model can be used with out any change even with unequal sampling rates. Logit is the natural logarithm of the odds ratio. The logit model is specified as follows:

$$P_i = E(Y = 1/X_i) = \frac{1}{1+e^{z_i}}$$

Where: $Z_i = B_0 + B_1X_1 + B_2X_2 + ... + B_kX_k + u_i$

Xi = i^{th} explanatory variable

Bi = Coefficient of explanatory variables to be estimated

K = represents number of explanatory variables included in the model

If Pi is probability in favor of non- defaulter /loan repaid/ by the household, then (1-Pi) is the probability of loan defaulter / loan not repaid by the household.

Therefore, $\left(\frac{P_i}{1-P_i}\right) = \frac{1+e^{z_i}}{1+e^{-z_i}} = e^{z_i} = e^{(B_0+B_1X_1+...+B_kX_k)}$

$\left(\frac{P_i}{1-P_i}\right)$ Is the odds-ratio that implies the ratio of the probability that an individual would choose an alternative Pi to the probability of the borrower would not choose it (1-Pi).

Taking natural logarithms of, $\left(\frac{P_i}{1-P_i}\right) = e^{z_i}$ .We have

$$\ln\left(\frac{P_i}{1-P_i}\right) = Z_i = B_0 + B_1X_1 + ... + B_kX_k + u_i$$

This log-odds ratio is a linear function of the explanatory variables and we call it logit model. In this case our data is based on individual observations; we will use the method of maximum likelihood function to estimate the model. To Gujarati (2003), in ML estimation procedure, our objective is to maximize the log linear function (LLF) that is to obtain the values of the unknown parameters.

3.3.3 Test for multi-collinearity

As stated above, the model adapted to this study is the logit model. In the course of application of the model, before fitting the selected important variables into the model, it is desirable to sort out problem of multi-collinearity among continuous variables and check the associations among discrete variables. The reason for this is that the existence of multi-collinearity that affect seriously the parameter estimation.

Variance Inflation Factor (VIF) was employed to test the existence of multi-collinearity problem among explanatory variables. VIF shows how the variance of an estimator is inflated by the presence of Multi-Collinearity (Gujarati, 1995). Each selected continuous explanatory variable (X_i) is regressed on all the other continuous explanatory variables, the coefficients of determination (R^2) being constructed in each case. R^2 is the adjusted square of the multiple correlation coefficients that result when the explanatory variable is regressed against all other. As a rule of Thumb, value of VIF greater than 10 is assumed often as a signal for the existence of multi-collinearity problem in the model (Gujarati, 1995). VIF is computed as follow:

$$VIF = \frac{1}{1 - R^2}$$

Where VIF = Variance Inflation Factor and R2 = the adjusted R square

Therefore, the above econometric model was used in this study to identify the determinants of smallholdersô credit utilization and repayment performance. A statistical software program called SPSS was used to analyze the data.

3.4 Definition of Variables

Based on the literatures, considering personal characters of borrowers and socio-economic factors, expected that to influencing credit utilization and loan repayment performance of agricultural credit borrowers from Cooperatives area\selected and defined as follows.

The Dependent variables are explained as Y_1 and Y_2, respectively these **are: -** The dependent variables for the logit analysis has a dichotomous nature representing observed credit utilization and repayment performance.

Y_1 = credit utilization: It refers the dependent variable is a dummy variable (1 if the borrower properly utilizes the loan for production and income generating activities otherwise 0, if the borrower misuse of the loan for unintended purpose during the year).

Y_2 = loan repayment performance status of the household who pays their loan before last date of repayment, the repayment schedule was every year the borrowers when they took a medium term loan which is above two years .For example, dairy cow borrowers

repay their loan with in four years installments, as follows at first year repay only interest rate, in the second year 25% of the total loan, in the third year 75% of the total loan and finally repay the rest amount of the loan based on the loan agreement. Therefore, the borrower who failed to pay the loan on due date (until June 30) categorized under defaulters, it is represented in the model by 1 for non-defaulters and 0 for defaulters.

The major independent variables that were included in the analysis are**: -**

Age of household head (X1): - It is a continuous variable represented by positive integer values. The householdsô age is hypothesized to have either positive or negative association with farmersô feelings on credit utilization and repayment performance. The first assumption in the study is that as the age progress, farmersô acquire experience and knowledge in credit use which in turn might help them to accumulate wealth over time which would enable borrowers to repay their debt in time than young borrowers. The second assumption in the study is that as age increases farmersô ability to earn additional income may decrease, because, as the age increases the working capacity of the household is expected to decrease (Kebede, 2006). However, the expected effect of age on credit utilization and repayment could be positive or negative.

In this study the age householdsô is expected to have a positive relationship with credit utilization. This refers as age progress; the attitudes of farmersô acquire experience and knowledge. Therefore, elder householders are expected properly utilizing the loan than young borrowers

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Similarly the age of the householdsô is hypothesized to have a positive relationship with loan repayment. This refers as the age progress; farmersô acquire experience and knowledge which in turn might help them to accumulate wealth over time which would enable borrowers to repay their debt in time than young borrowers.

Gender of the household head(X2): this is a dummy variable take a value (1, if the household head is male and 0 otherwise). Gender differentials in the farm households play a significant role in the economic performances of a given household. This variable is expected that the male borrowers are more properly utilize the loan than female

borrowers because to get more job opportunities options and physically stronger than female.

On the other hand this is a dummy variable take a value 1 if the household head is male and 0 otherwise. This variable is hypothesized that female borrowersô are more loyal to the lenders to repay their loan than male borrowers. This may arise from the fact that females are more responsible for child care and home management and hence they may fear more than males regarding the punishments arising from loan default, which may be detection (Bekele, 2001).

Family size of household (X3): Refers to the number of people living in the same residence. The large the family members, the more the labor force available for production purpose, the less the probability to default. On the contrary, to this fact large family size may not able to produce enough because large households consume more than do the small households. Therefore, the coefficient of this variable may appear negative or positive sign (Zemen, 2005)

In this study the variable is hypothesized negatively. The fact indicates that if the household head has large family size may not able to produce enough amount of production for family consumption to their families. For this reason the loan may misused for consumption purpose. Therefore, the coefficient of this variable may appear negative.

On the other hand loan repayment is expected to a positive relationship with family size of the households. This refers the larger the family members, the more the labor force available for production purpose, the less the probability to default. Therefore, the coefficient of this variable may appear positive relationship with the loan repayment dependent variable.

Level of education of the household head(X4): This is a continuous variable represented by positive integer values/number of years. Level of Education is likely to have a positive relationship with credit utilization. This represents the level of formal

schooling completed by the household head. Education is a social capital, which could impact positively on household ability and well-informed about investment production decisions. Some scholars argued that education could be more important to properly use the loan for the intended activities.

Similarly For loan repayment education is hypothesized as a positive relationship between the independent variable. Education is a social capital, which could impact positively on household ability to use new production technologies and investment decisions. Also they are aware of the importance of repayment and its consequence if they are not repaid in time .Therefore literate household borrowers expected to repay in the due date than illiterate borrowers.

Total livestock ownership(X5): In this study farmers with higher number of total livestock ownership are expected to have a positive relationship with credit utilization. This is due to the fact that, Livestock is considered as another asset which is liquid and a security against crop failure. A farmer with higher number of livestock is better-off than those with less number of livestock therefore owning more livestock can help Farmers to use the borrowed money on the appropriate venture.

Similarly loan repayment dependent variable is considered to have a positive relationship with the independent variable. This refers to the more animals possessed by the household settle their debts in the due date and even neutralizes them at the time of crop failure/ bad season by selling out their animals and animal products.

Oxen ownership(X6): In this study it is hypothesized that there is a positive relationship between oxen ownership and credit utilization. Oxen are the predominant source of traction power in the area. Therefore, farmers who own more oxen would be in a position to undertake better farm activities on time. Ownership of more oxen power would likely be positively related to proper credit use.

In the same time there is also a positive relationship between loan repayment and oxen owner households. As mentioned above Oxen are the predominant sources of traction power. Therefore, farmers who own more oxen would be in a position to undertake farm activities on time. It is also a means of source of income by renting to others. Therefore, more Oxen Ownership required more power would likely be positively related to repayment performance of smallholders than ownership of less number of oxen.

Size of Land holding (X7): In this study size of land holding hypothesized that a positive relationship with credit utilization. This refers that the total farm size (in hectares) owned by the household is expected to be better-off, if augmented with other factors of production, large farm size may give higher produce that may enable the borrower to invest additional other income generating activities. Therefore, if the household accumulate enough wealth the loan may not misused for unintended purposes.

Similarly the total farm size (in hectares) owned by the smallholders with more hectares of land is expected to be better-off. This variable likely that a positive relationship with Loan repayment performance. In the same time, if augmented with other factors of production, large farm size will give higher produce that will enable the borrowers to repay their loan in time rather than they have small parcel of land. Therefore, this variable is expected to have positive relation with the dependent variable.

Total cash income in Birr (X8): It is a continuous variable. This refers to the total amount of cash that specific household raised from different activities on cash which includes both on farm and off farm activities. This income is the immediate source of capital for smallholder farmers to finance their day-to-day activities. Therefore, the higher the total cash income earned borrowers utilize the loan for investment rather than the less total cash income earned borrowers.

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In the same time total cash income is expected that a positive relationship with loan repayment. As mentioned in the above the total amount of cash that households rose from different activities on cash which includes both on arm and off farm activities. Higher

income borrowers can easy repay the loan with out any difficulty. Therefore, less total cash income earn borrowersô defaulter than the higher total cash income.

Crop income of the household in Birr (X9):- It is a continuous variable. Crop income is defined as the total income generated from crop production activities measured in birr during a particular year. This variable is hypothesized a positive relationship with credit utilization. Income generated from these activities may help farmers to adopt new technology and investment.

Crop income is expected similarly positive relationship with loan repayment. Income from crop is the immediate source of working capital for smallholder farmers to finance their day-to-day activities. Hence, higher revenue may result in the better repayment capacity of the borrower than the lower income.

Income from off-farm activities (**X10**): This is continuous variable. Off-farm activities generate additional sources of income for smallholders. This study is hypothesized as a positive relationship with credit utilization. Therefore income from off-farm/non-farm cash generated from these activities would back up the farmersô income and facilitate the loan uses for the projected investment.

Similarly the income from off-farm/non-farm is expected to have a positive relationship with loan repayment. Additional Cash generated from these activities would help the farmersô to settle their debt in the time of repayment period even coincide with low agricultural prices. Hence, households involved in off-farm activities tend to be more capable of repaying.

Family expenditure (X11): This refers to the sum of household expenses on food item, clothing, education, health; etc. Family expenditure is hypothesized that a negative relationship with credit utilization. Households may spend more for consumption purpose may not invest the loan in appropriate way.

In the same time family expenditure is likely expected that a negative relationship with the loan repayment. The household spend more expenditure for his family is led to unable to repay their debt in the time of repayment period.

Expenditures on celebration of social ceremonies by the household(X12): This is a continuous variable, which accounts for the amount of money spent by the household to finance various social ceremonies. In this study the dependent variable credit utilization is hypothesized a negative relationship with the independent variable. If he/she spends more produce for celebration of social ceremony may led credit mis utilization.

On the other hand the variable also expected a negative relation with loan repayment. These social ceremonies have their own negative impacts on the repayment performance of borrowersô .Therefore, if use the loan for social ceremonies to led not to repay in the due date.

Experience in credit use (X13): It is a continuous variable the total number of years that the household head experience of borrowing from formal and semiformal sources of credit institutions. This is hypothesized positively with credit utilization. Farmers who have experience in formal credit used to develop reputation, credit worthiness and they know well to utilize the loan appropriately.

Similarly experience in credit use with repayment is expected to be a positive relationship. As mentioned above farmers who have experience in formal credit used to develop reputation, credit worthiness and become trustworthiness. Therefore, they would like paying their debt on the due date than inexperienced farmers.

Amount of money borrowed by the household(X14): This refers to the amount of credit input that the household received from the lending institutions in the production year. According to Gebrihwot (2006), the model output revealed that increased loan amount enables the borrowers to generate more income and this leads them to repay their debt in time. Therefore, this variable is expected to have a positive relation with the dependent variable.

Change in their living standard after credit use(X15): It is a dummy variable, if the households benefited from the loan and changes their living standards 1 if not 0. Therefore, change in their life style refers the respondents they were able to(increase there income to improve their nutritional status of family, they educated their children; they built own house and etc, This indicates that it may enable and generate more income of borrowers help to use the loan properly and to repay their loan on time. Therefore, this variable may expect positive relation ship with the dependent variables.

Supervision by Experts & Cooperatives Management(X16):

Supervision is hypothesized positively with Credit utilization. It is not enough to advance credit input to farmers only but, the lending institution (cooperatives) should ensure its efficient utilization through effective supervision. Such supervision prevents the misuse of the loan for non productive purposes.

Similarly supervision is expected to have a positive relationship with loan repayment. Therefore, after credit distribution it is very curial close supervision by experts and cooperative loan committee. This helps to accelerate regular repayment facilitates and in turn ensures increasing production and income and ultimately ensures the development of agriculture.

Training (X17): It is a discrete variable, which takes a value of (1 if yes and .0, otherwise). Training would increase the awareness level of farmers and exposure to new ideas, information, activities, opportunities, working environment etc. Usually training programs which focus on credit may help borrowers to use the loan fund efficiently for different source of income generating activities. Moreover, training may help borrowers to know their rights and obligation how to use the loan for productive activities and simultaneously to repay their debt in time. Therefore, training is a positive relationship with credit utilization and loan repayment performance of households.

Credit utilization(X18): this refers the value of total credit use for production purpose. This is a dummy variable. (1, if the loan properly utilizes if the loan misused for unintended purpose 0.). Therefore, credit is the key input for all development investments. If they have knowledge about handling and managing the loan properly might increase production and productivity. Therefore, this variable is hypothesized to have a positive relationship and ultimately repay their debt in time than misused borrowers.

Saving habit (X19): Farmers usually save from their proceeds for consumption smoothing purposes through out the year, accumulation of wealth, and for contingency purposes in case of bad harvest or accident. In this study saving habit is expected to have a positive relationship with credit utilization. Therefore, if the households developed saving habit practice, may help them to use the borrowed money properly than non developed saving habit borrowers.

Similarly saving habit practices developed borrowers have likely a that positive relationship with loan repayment. As in the above mentioned saving habit practice developed farmers enables to easily liquidate and fulfill the contract entered when prices of products are not conducive. Therefore the more the amount of savings, the greater the capacity to repay as opposed to low amount of savings.

Sufficient amount of credit from formal institutions(X20): (1, if the amount of the loan sufficient and not sufficient 0). If the supply of credit is equivalent to the demand for it, there is no rationing problem and farmers acquire the amount of they demanded .On the other hand if the households get enough amount of loan from formal financial institutions may help the households from informal money lenders and eliminate the discrimination of charged higher rate of interest. Therefore, in this study this variable is hypothesized that a positive relationship with credit utilization if the borrowers may get sufficient amount of credit may help properly used the loan for the intentional activities.

Likewise, the sufficient amount loan is expected to have a positive relationship with repayment. Similarly as stated above farmers acquire enough the amount of loan they demanded they may able to repay the loan on time.

Beneficiary of Safety net (X21): it is a dummy variable**,** (1, if beneficiary from safety net program if not 0). The borrowers may or may not be safety net program beneficiary. Therefore in this study, safety net program benefit could have a positive or negative impact on credit utilization and loan repayment.

In this study of safety net program beneficiary farmers are expected to be the poorest of the poor. The poor households may not be able to cover all necessity needs for survival from their own produce. Hence, in this study have a negative relationship with credit utilization. For this reason, safety net program beneficiary households may misuse for consumption purpose than non beneficiaries.

At the same time safety net beneficiary households expected to have that a negative relation with repayment. As mentioned above safety net beneficiary borrowers may not able to acquire sufficient amount of income. Therefore in this study a negative influence on loan repayment of borrowers and not settle their debt in time.

Timeliness of credit disbursement (X22): It is a discrete variable. (If, the borrower response on the timeliness of credit is yes, the value is "1", if no ñ0".) The basic logic indicates regarding to the timeliness of credit is if, the borrowers get credit on time, they can use for proper investment and in the same time they built asset and generate more additional income. In this study the timeliness of credit is expected that a positive relationship with credit utilization. Therefore, appropriateness of credit timelines is may help the borrowers to use the loan for the intended venture.

Similarly, as mentioned in the above timeliness of credit has a positive relationship with loan repayment. If, credit distributes in appropriate time, the more the chance of the repayment of the credit is at proper time.

Diversion (X23): It is a dummy variable (1, if the borrower divert for other income generating activities otherwise 0). Diversion refers that the expansion of different activities. Therefore, in this study diversion is hypothesized that a positive relationship with credit utilization the borrowers may invest/ uses for additional and/or other different income generating activities such as on farm and off farm activities including petty trade. These ventures to enable the householdsô to accumulated wealth and may help the loan use properly. Therefore, the non defaulter borrowers proper utilize the loan than defaulters.

In the other way diversion is positive relationship with the loan repayment performance. Similarly to the above explanations the borrowers invest/uses the loan for additional and /or other income generating activities that capacitate the borrowers to repay their loan in time.

Amount of loan borrowed from other sources in Birr (X24): It is a continuous variable. In this study amount of borrowed from other sources is expected to have a positive relationship with credit utilization. For this reason, borrowers may need additional credit from other credit sources such as, formal and informal money lenders. Most of the formal loans are used for production purpose. Therefore, the borrowerôs may borrow from different credit supplier sources to help to expand their investment in an appropriate way.

In contrast in this study the mount of loan from other sources may expect a negative relationship with repayment. As mentioned above the householders may borrow from different formal and informal credit institution suppliers. So due to several reason like social pressure, amount of interest rate and credit from other sources the borrower may be forced to repay first such credits. Therefore, the coefficient of this variable may be appearing negative impact for repayment performance.

Purpose of borrowing (X25: This is a dummy variable. In this study the purpose of the loan refers to for the purchases of different activities such that dairy cow, oxen fattening, sheep and goat petty trade and etc... These activities may enable farmers ото build asses and to generate their income endeavors that would give maximum benefits to the farmer. As this variable proxies the use of the loan for productive purposes, it is expected to have positive impact on loan repayment performance of small holders.

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Duration of cooperative membership(X26: It is continuous variable. Duration of cooperative membership is hypothesized a positive relationship with credit utilization. This expectation represents the total number of years since the household head has become a member of that cooperative. Since memberфs active participation is an important cooperative principle, member who has joined the cooperative earlier may have strong attachment to the institution and help to acquire skills how to use the loan for appropriate investment compared to their fresh fellow members.

On the other hand the variable also expected that a positive relationship with loan repayment Similarly as in the above mentioned members who have joined in cooperative earlier may have strong attachment with the institution may contribute good outlook. So it is fair to hypothesize that senior members have better sense of belongingness and show loyalty to their cooperative than the fresh ones. Therefore, it is expected in this study that senior members of the cooperatives may pay back their debt in time as compared to their fresh fellow members.

Natural hazard (X27: This refers those natural hazards such as, flood, drought, frozen, pest and disease infestation of crop and death of animals. It is dummy variable taking a value of (1, if the natural challenges are occur and if, the natural challenges not occur 0).In this study the occurrences of natural challenges are hypothesized a negative relationship with credit utilization. Natural hazard reduces/ loses farm and non farm income of farmers by affecting the produce of agricultural and non agricultural activities. Therefore, the loan may push to misuse for unintended purpose.

In the other hand natural hazard affect negatively the repayment variable. Similarly as mentioned in the above if, natural hazards reduced farm and non farm income of farmers the borrowers may not able to repay their loan in the time of repayment period.

Other independent variables

Rather than the above describe variable, independent variables like, perception of farmers, etc was included in the study.

Chapter Four

Results and discussion

This chapter discusses the analytical results of the study. The first section of this chapter presents the descriptive statistics results of the study. This is followed by the discussion of the econometric model results.

4.1 The Results of Descriptive Analysis

For descriptive statistics analysis, tools such as mean, percentage, standard deviation and frequency distribution were used. In addition, T-test and Chi-square test were employed to compare non-defaulter and defaulter, properly users and misuse groups with respect to some explanatory variables.

4.1.1 Socio economic characteristics of Borrower

4.1.1.1 Age of the sample household head

Age of the household is one of the factors which affect family labor of household in farming community. As the age progress; farmersô acquired experience and knowledge. In this study, out of 156 respondents, 104 were properly used their credit which they have taken the loan and the remaining 52 respondents did not utilize properly.

Regarding to loan repayment, age of household head is believed to be a great source of experience in day-to-day activity of human beings. So, elderly heads of household are expected to have more experience in credit utilization and timely repayment. Hence, out of the total 156 respondents, 78 were, non defaulters and the remaining were defaulters. As the result in Table 3, depicted majority of the non defaulters are in the age group of 31-45 (45%) and similarly majority of the defaulters are 34 (44%).The average age of the household head is found to be 43.75 years (44.06 for non-defaulters and 43.44 for defaulters) with the standard deviation of 12.737. The minimum and maximum age of sample household heads are19 and 78 years, respectively. Therefore, the chi- square value (0.465) indicates that there is no statistically significant difference between the age of the households and both dependent variables.

Table 3: Age of the household

	Non- Defaulter		Defaulter		Chi-square value	Total	
Age group	No	%	No	%		No	%
Age group(19-30)	11	14	14	18		25	25
Age group(31-45)	35	45	34	44		69	69
Age group (46-60)	23	29	21	27		44	44
Age group above 60	9	12	9	12	0.465	18	18
Overall mean	44.06		43.44			43.75	
Standard deviation	12.362		13.175			12.737	
Maximum	78				78		
Minimum	19				19		

Source: Computed from the data

4.1.1.2 Sex of the respondents

Gender differentials were playing a significant role in the economy. It is assumed that male borrowers properly utilized the loan than female borrowers. The result of the study shows that from the total 156 respondents, 104 borrowers were properly users and 52 were misuers(including the loan divert for productive but, unintended purpose).Out of the properly users 74 (71%) were male and 30 (29%) were female and. out of 52 misuses, 33 (61%) were male and 19 (39 %)were female. Therefore, the Pearson chi-square value (0.952) indicates that there is no significant difference between the sex of respondentsô and credit utilization.

Regarding to the repayment, female borrowersô are expected to be more loyal to the lenders to repay their loan than male borrowers. The assumption is that this arises from many reasons; it might be that female borrowersô fear of high interest rate and/or due to high penalty and may not like to take the risk if something happened out of their capacity. The non defaulter borrowers were 56 (72%) male and 22 (28%) female, the remaining 51(65%) male and 27 (37%) female were defaulters. The Pearson chi-square value (0.744) shows that there is no significant difference between male and female borrowers with regarding to loan repayment of households.

Table 4: Sex of respondents 'with credit users and loan repayment observation

Sex	Non- Defaulter (78)		Defaulter (78)		Chi-square value	Total	
	No	%	No	%		No	%
Loan repayment							
Male	56	72	51	65	0.744	107	69
Female	22	28	27	35		49	31
Total	78	100	78	100		156	100
Sex	**Users (104)**		**Miss-users (52)**		**0.952**	**Total**	
	No	**%**	**No**	**%**		**No**	**%**
Credit utilization							
Male	74	71	33	61		107	68
Female	30	29	19	39		49	32
Total	104	100	52	100		156	1000

Source: Survey result

4.1.1.3 Education status of the respondents

Education is a social capital which has a positive impact on household ability to understand and utilize new technological information and also to know their rights and obligations. It can help them to understand their rights to borrow agricultural input credit and also their obligation to repay their debt on time. But lack of education and poor awareness level thereof may be a bottleneck to manage the input credit and repay on the stated repayment date. The survey result indicated that out of the total 156 respondents, the majority 48 (62%) are literates (who attend 31% Primary and 31% junior school) are non defaulters and the majority 43 (55%) of the defaulters are illiterates. Therefore, the literate borrowers are well informed and responsible to repay their loan on time than illiterate borrowers. The chi-square value (11.945***) indicates that there is significance relationship between education and l repayment performance.

On the other hand the level of education is similarly having a positive relationship with credit utilization. Out of the total 156 respondents, 104 were proper users and 52 misuses.

The majority of respondents, 59 (57%) who attend 24% Primary and 33% junior school were proper users of the loan for the intended purposes of activities whereas, Out of 52 loan misuseôs, 28 (54%) were illiterate. Pearson chi-square value (3.593) revealed that there is no significant difference between proper users and misuses.

Table 5: Level of education of the respondents

Level of education vs. Loan repayment	Non- Defaulter (78)		Defaulter (78)		Chi-square value	Total	
	No	%	No	%		No	%
illiterate	30	38	43	55	11.945***	73	47
Primary school	24	31	7	9		31	20
Junior school	24	31	28	36		52	33
Total	78	100	78	100		156	100
Level of education vs. Credit utilization	Users (104)		Miss-users (52)			Total	
	No	%	No	%	3.593	No	%
illiterate	45	43	28	54		73	47
Primary school	25	24	6	12		31	20
Junior school	34	33	18	35		52	33
Total	104	100	52	100		156	100

Source: Computed from the data

*** Significant: at less than 1 percent level of significance.

4.1.1.4 Family size of the sample households

In this study, the total family size of the respondents was 841 members. The marital status of the respondents were, 3 (4 %) was single, 61 (78%) were married, 10 (13 %) were divorced and 4 (5 %) were widowed. The family size of the respondents was categorized into three. As Table 6 blow reveals respondents with family size of 4 -6, 7-10 and 1-3 categories are 49%, 29% and 22% respectively. The average family size of the respondentsô were5.39 (5.5 persons for non-defaulters and 5.28 persons for defaulters).with the standard deviation 2.011.The minimum and the maximum family size were 1 and 10 persons per household head respectively. Moreover, this table indicates that majority of the respondents, 41(53%) non defaulters and 36 (46%) defaulters are having at 4-6 family size. Therefore, computed χ^2-value (0.880) reveals that there is no

statistically significant difference between the non-defaulters and defaulters groups with regard to family size towards credit utilization and repayment performance.

Table 6: Family size of sample households

	Non- Defaulter		Defaulter		Chi-square value	Total	
family size in group	No	%	No	%		No	%
1-3	17	22	17	22		34	22
4-6	41	53	36	46	0.880	77	49
7-10	20	26	25	32		45	29
Overall mean	5.5		5.28			5.39	

Source: Computed from the data

3.3.1.1 Credit utilization

Credit extended to the farmers used for production purpose, encourages production. In this study the Table7 shows that from the total 156 respondents, 63 (81%) non defaulters were properly utilized the loan and 15 (19 %) did not utilize the loan for an intended purpose and defaulters also 41 (53%) properly used and the remaining did not use properly. Therefore, the survey result shows the non defaulter borrowers used the loan properly rather than defaulters. However, in this result there is statistically significant difference at less than 1 percent level between non defaulters and defaulter borrowers. Chi-square Table 7 shows that (13.962***). Regarding to credit utilization the average amount of loan misused was 302.60 Birr with the standard deviation of 508.63 Birr. Out of these the average misused by non defaulters and defaulter respondents were 182.2 with the standard deviation 433.11 and 423 with the standard deviation 552.75 respectively and the minimum amount of misused is 100 and maximum amount of 1500 Birr for both groups of respondents. On Table 8 the t-value-2.972*** result shows that there is statistically significant difference between users and mis-users.

Regarding to diversion out of the 52 household respondents utilize the loan for unintended purpose, indicated on Table 7. the 27 (17%) diverted the loan for other income generating activities as indicated on Table 9, of which 19 non defaulters and 8 defaulters diverted to other income generating activities, however,25 borrowers the loan

diverted for unproductive purpose. Table 9, (chi-square value 5.419**) shows that there is statistically significant different at less than 5 percent level between non defaulters.

Table 7: Characteristics of borrowers in respect to proper credit utilization and repayment

	Non- Defaulter		Defaulter		Chi-square value	Total	
Credit utilization	No	%	No	%		No	%
Properly utilize	63	81	41	53		104	67
Not used	15	19	37	47	13.962***	52	33
Total	78	100	78	100		156	100

Source: Computed from survey data

*** Significant: at less than 1% level of significances

Table 8: utilization of credit

Amount of miss- used	Mean	SD	Mean	SD	t-value	Mean	SD
Misused (in birr)	182.2	433.11	423	552.75	-2.972***	302.60	508.63
Maximum	1500		1500			1500	
Minimum	100		235			235	

Source: Survey results

*** Significant at less than 1 percent level of significant

Table 9: Respondents respond for other income generating activities

	Non-Defaulter		Defaulter		Chi-square value	Total	
Diversification	No	%	No	%		No	%
Yes	19	24	8	10	5.419**	27	17
No	59	76	70	90		129	83
Total	**78**	100	**78**	100		**156**	100

Source: Computed from survey data

** Significant at less than 5 percent level of significant

4.1.1.5 Total livestock ownership of the sample households

Next to land, livestock is the most important asset for rural households in Ethiopia. It is used as a source of food, draft power, income and energy. Moreover, livestock is an

indicator of wealth and prestige in rural community. The types of livestock reared by the households are cattle (included oxen), sheep and goats (small ruminants), pack animals (equines) and poultry The total number of livestock owned by the household heads was 605 including oxen ,181 cattle, 334 heads of sheep and goats, 39 heads of equine, and 391 heads of chickens. The average number of livestock unit (TLU) of the households was 2.824 with the standard deviation of 2.641.for non-defaulters average number of livestock were 3.68 with the standard deviation of 2.95 and the defaulters average number of livestock holding was 2.54 with the standard deviation of 2.28. This result indicates that the non defaulters have better livestock owners than defaulters. Hence, these variables are believed to differentiate both the dependent variable two groups as this difference might help the respondents properly credit utilize and repay their debt on due date. Therefore, in this study the result Table 10 (t-value2.679***, p-value 0.008) shows that there is statistically significant at less than1 percent and 5 percent level of significant.

Table 10: Livestock resources of sample farmers

	Non- Defaulter		Defaulter				Total	
Description	Mean	SD	Mean	SD	t-value	p-value	Mean	SD
Total number of livestock	3.68	2.95	2.54	2.28	2.679***	0.008	2.824	2.641
Oxen ownership	.97	.939	.64	.789	2.400**	0.018	0.630	0.81
Bulls	0.144	0.297	0.163	0.334	-0.380	0.705	0.165	0.329
cows	1.08	1.041	0.833	1.024	1.472	0.143	0.920	1.031
heifer	0.307	0.46	.109	0.272	3.288***	0.001	0.205	0.401
Calves	0.12	0.17	0.09	0.13	1.507	0.134	0.101	0.149
donkey	0.68	1.038	.036	0.683	2.302**	0.023	0ô273	0.570
shoats	0.538	0.898	0.370	0.630	1.350	0.179	0.444	0.824
Poultry	0.054	0.08	.098	0.44	-0.853	0.395	0.088	0.395

Source: Computed from the data

***, **Significant: less than 1 percent and 5 percent level of significant.

4.1.1.6 Total Size of owned and cultivated land

Land is the basic asset of farmers; almost majority of the farmers in the study area have access to farming land. In this study the table below shows that out of the total 156 households 146 (94%) were land owners and the remaining only 10 (6%) were land less respondents. The total average cultivated land was 2.34 ha with the standard deviation 1.499 which is greater than the 0.5 ha average land size of the region with being the land less and the maximum 2 ha land holding. On average the non-defaulters holding size of the cultivated land is greater than average cultivated land holding by defaulters. In addition, Table 12 indicates that Shared crop land holding of respondents can be observed in contrast, defaulter farmers share cropped land holding is (1.12ha) which is greater than the non defaulters (1.00 ha).Therefore, in this study there is significant difference between non defaulters and defaulters the (t-value 2.266**) result reveals that the non defaulters have a better size of land owned than defaulters. This implies better performance of total cultivated land size might help them to produce enough amount of produce and enables to use the loan properly and repay their debt in time than the defaulter borrowers.

Table 11: Total land holding by sample households

Total land holding vs. Loan repayment	Non- Defaulter (78)		Defaulter (78)		Chi-square value	Total	
							%
					0.427		
	No	%	No	%		No	
Yes	72	92	74	95		146	94
No	6	8	4	5		10	6
Total	78	100	78	100		156	100
Overall mean	2.66		2.02			2.34	
Standard deviation		1.768		1.097			1.499
Maximum		2		1			2
Minimum		0		0			0
Total land holding vs. credit utilization	Users (104)		Miss-users (52)		0.214	Total	
	No	%	No	%		No	%
Yes	98		48			146	94
No	6		4			10	6
Total	104	100	52	100		156	100

Source: Survey results

Table 12: Land Ownership

Descriptions	Non-defaulter		Defaulter		t-value	Total	
	Mean	SD	Mean	SD		Mean	SD
Owned land	2.66	1.768	2.06	1.097	2.266**	2.34	1.499
Share cropped land	1.00	1.309	1.12	1.468	-.518	1.06	1.388
Maximum	2		1			2	
Minimum	0		0			0	

Source: Survey results

**Significant: at less that 5 percent total cultivated land size

4.1.1.7 Oxen ownership of the household

Oxen are the main means of draught power in the study area. As oxen are important input in crop production, owning oxen facilitates the timely cultivation of farmland and

encourages timely repayment of loan. In addition number of oxen shows the status of wealth in the farming community. Out of the total 156 respondents, 71 farmers (46%) did not own any ox, while 50 farmers (32%) own single ox, 30 farmers (19 %) own pair of oxen and the remaining 5 farmers (3 %) 3, 4 oxen respectively. On average the number of oxen owned by non-defaulter borrowers were 0.97 with the standard deviation of 0.939 which is greater than defaulter borrowersô 0.64 with the standard deviation 0.789.Therefore, the result showed that oxen ownership is crucial for the farming operation and for income generating activities and it is one of the variables that differentiate the two groups. Moreover, Table 13 t-value2.400** indicates that statistically significant difference at less than 5 percent level between the non defaulter and defaulter borrowers. More oxen unit means more asset and more asset possession leads to investment decision

Table 14: Oxen ownership

Oxen ownership	Non- Defaulter (78)		Defaulter (78)		Chi-square value	Total	
	No	%	No	%		No	%
Loan repayment							
Yes	**49**	**63**	**36**	**46**		**85**	**54**
No	**29**	**37**	**42**	**54**		**71**	**46**
Total	**78**	**100**	**78**	**100**	**3.136 ***	**156**	**100**
Overall mean	**0.97**		**0.64**			**0.80**	
Standard deviation	**0.939**		**0 .789**			**0.88**	
Maximum	**4**		**2**			**4**	
Minimum	**0**		**0**			**0**	

Source: Survey results

*Significant: at less that 10 percent level of significant (Chi- square 3.136 *)

Table 15: Distribution of oxen

	Non- Defaulter		Defaulter		Chi-square value	Total	
Number of oxen	No	%	No	%		No	%
0	29	37	42	54		71	46
1	28	36	22	28	5.497	50	32
2	17	22	13	17		30	19
Above- 3	4	5	1	1		5	3

Total	**78**	100	**78**	100		**156**	100

Source: Survey results

4.1.1.8 Farm and non-farm/of farm income of sample households

Mixed Farming (crop and livestock) and non-farm activities are important income sources for the sample borrowers. As shown in Table 16, all the sample households earn their annual income from sales of crop and livestock. Sales of crops, live animals and animal products are the major sources of income of the sample households and plays substantial role in generating income of the smallholders in the study area. Table 16 shows that the average annual income earned by non-defaulters and defaulters during the year 2008/09 was 17605.90 birr, 13278.12birr respectively. Therefore, the t-value 3.077*** shows that there is significant difference between non defaulters and defaulter borrowers

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On the other hand the sample respondentsô average income earned from farm activity, such as (crop production, and livestock) in 2008/09 by the non defaulters and defaulters are 13117.25 Birr and 10044.14 Birr per annum respectively Table16 the t- value 2.025** shows that, there is significant difference between the two groups at 5 percent level.

Income from livestock in Table16 also indicates that there is statistically significant difference at less than 1 per cent level significance between the non-defaulter and defaulter groups. Income from livestock includes income from animals and animal products. Moreover; the statistical analysis result shows that there is also significant difference at less than 1 percent between the two groups with regard to total farm income of the sample borrowers.

The major non-farm/off-farm income generating activities practiced in the area were selling labor (daily laborers), petty trading (selling consumable commodities, weaving, hand craft, local drink and other activities).In the income from non farm/off-farm activities the non defaulters earn better amount of income than defaulters. Therefore, non-defaulters earned on the average the higher amount of cash from non-farm activities (39390 birr) as compared to the defaulters who earned on average 14208 birr .Therefore,

the respondents if acquired enough amount of income from the above income sources might have used the loan properly and able to repay their loan on time.

Table 16: Main sources of income

	Non- Defaulter		Defaulter		Chi-square value	Total	
Income	No	%	No	%		No	%
Mixed farming	54	69	49	63	.714	103	66
Crop& non farm/ of farm	24	31	29	37		53	34
Total	**78**	100	**78**	100		**156**	100%

Source: Survey results

Table 17: Total Annual cash income, farm income and off farm income of respondents

	Non- Defaulter		Defaulter			Total	
Description	Mean	SD	Mean	SD	t-value	Mean	SD
From sale of crop	7572.39	4498.93	6596.55	3794.97	1.690	8.624	5273.39
From sale of livestock	5456.13	4802.19	3427.83	4190.7	2.273***	5.426	4799.98
From non-farm activity	4589.83	4402.48	3253.45	3137.86	.939	3.675	4030.36
Total farm income	13117.25	8086.68	10044.14	6925.87	2.025**	1.411	8683.27
Total Annual income	17605.9	7583.64	13278.21	6180.43	3.077***	1.7785	7440.65

. Source: Survey results

***Significant: at less that 1 percent% ** less than 5 percent level of significant

4.1.1.9 Duration of cooperative membership of the household Heads

For the cooperative to be successful, its members, as user-owners of the cooperative must be active through their patronage, capital investment and participation in decision making. Cooperatives should also be efficient to provide services to their members and their families. Moreover, they have social responsibility to improve the quality of life in its community. Unlike a private enterprise, whose basis is its capital investment, the cooperative is based on its membership. The fully paid-up member is the one who has paid the value of only one share of the equity capital of the cooperative. Moreover,

members leaving the cooperative have the right to be reimbursed by the cooperative to the real value of one share.

Therefore, in this study it is expected that senior members of the cooperatives may pay back their debt on time as compared to their fresh fellow members Moreover; cooperatives provide education and training for their members, elected representatives, managers, and employees so they can effectively contribute to the development of their cooperatives. Due to these and other benefits, length of membership of a cooperative has direct impact on credit utilization and repayment performance. In the study area, cooperatives movement was restarted again after the fall of the Derge regime in 1992 and since they served their members by giving agricultural credit input and other industrial commodity services. Out of 156 respondents the majority 75 (48%) of the non defaulters and defaulters duration of membership cooperatives was between the years 2 and 6 and the remaining 22 (14%), 58 (38%) respondents were from years 7 up to11and years 12 up to 22 respectively, with the minimum 2 years and maximum 22 years duration of membership. In this study, (Pearson Chi-Square 1.346) result shows that non-defaulters and defaulters were similar years in the duration of cooperative membership. Therefore, there is no statically significant difference between the two groups

Table 18: Duration of cooperative membership

	Non- Defaulter		Defaulter		Chi-square value	Total	
Description	No	%	No	%		No	%
2-6 (in years)	35	45	40	51		75	48
7-11 (in years)	10	13	12	15	1.346	22	14
12-22 (in years)	33	42	26	34		59	38
Total	**78**	100	**78**	100		**156**	100

Source: Survey results

4.1.1.10 Experience of credit usage by sample households in years

Farmers may develop good experience in efficient utilization and keeping their promise to pay on time when they use credit for long period of time. In this study out of 156 respondents, 104 (66%) have credit use experiences that ranges 1upto3 years. The remaining,(4-6), (7-10) and above 10 years respectively. Average length of credit

experience from formal credit sources of sample households was 2.94 years with a standard deviation of 2.148 and the minimum and maximum experience year were1 and 11 years respectively. The average experience of years in formal credit use by the non-defaulters is 3.20 and defaulters are found to be 3.10.The result shows that the majority of householdsô have not the experience of credit used but average length of formal credit experience of the non-defaulter group is relatively greater than the average length of defaulter group. Statistically there is no significant difference between non-defaulter and defaulter groups with regard to the experience of credit use and repayment.

Table 19: years of experience in credit use by Respondents

Experience in credit use	Non- Defaulter		Defaulter		Chi-square value	Total	
	No	%	No	%		No	%
1-3 (in years)	53	68	51	65	1.269	104	66
4-6 (in years)	18	23	21	27		39	25
7-10 (in years)	6	8	6	8		12	8
Above 10 (in years)	1	1	0			1	1
Maximum	11		9			11	
Minimum	1		1			1	
Total	**78**	100	**78**	100		**156**	100

Source: Computed from survey data

4.1.1.11 Expenditures on social ceremonies by sample households

Celebration, such as Christmas, Epiphany and Easter and occasional ceremonies such as wedding, óReligious dayô, *Mahiber'*, funeral of a family member or close relatives were celebrated by the sample respondents. According the survey result, the majority of respondents 32 (41%), 43 (55%) non-defaulters and 45 (58%), 21 (31%) defaulters were reported that they spent from 200-500 birr up to501-1000 birr with the maximum expenditure of non-defaulters 501 Birr and the defaulters were reported that they spent the maximum expenditure rang 5000 Birr. This result shows the amount of money spent by the non defaulters was less than the amount of money spent by defaulters. Therefore, the Table19 indicates that there is statistically significant difference at less than 5 percent level between non-defaulter and defaulter borrowers. The chi-square result shows 10.916** on the social ceremonies of celebration of the household.

Table 20: Distribution of the sample household and amount of money spent to celebrate holidays and social occasions (Birr)

	Non- Defaulter		Defaulter		Chi-square value	Total	
Amount of money spent	No	%	No	%		No	%
200-500	32	41	45	58	10.916**	77	49
501-1000	43	55	24	31		67	43
1001-3000	2	3	4	5		6	4
3001-5000	1	1	5	6		6	4
Total	**78**	100	**78**	100		**156**	100

**Significant: at less than 5 percent level of significant

Source: Computed from survey data

4.1.1.12 Total family expenditure of the respondents

Generally the householdsô family expenditures are including food item, clothing, education, health, etc. The household, which spends more, may be expected to influence credit utilization and the ability of repayment in due date. The household, which spends more of its capital, is expected to spend more on farm inputs, which again increase his capital later. Therefore, as the table result below shows that the non defaulter households spent money for their family consumption and for purchase of agricultural inputs on average, family consumption 10372.12 with the amount of minimum 3798 birr and maximum 20086 birr respectively and on average spent for farm inputs 381.32 with the minimum 350 and maximum 2600 birr respectively.

On the other hand the defaulter households spend their amount of money for their family consumption and for purchase of inputs were on average 9120 with the standard deviation 4047.47 birr. The minimum and maximum amount of family expenditure was 9120Birr and 10502 birr respectively. Therefore this result shows there is statistically significant difference between non defaulters and defaulter borrowers. Non defaulters spent more money rather than defaulters at less than 5 percent level of significant 0.023 the (t-test shows 2.304**).

Table 21: Annual family expenditure and purchase for inputs

Annual expenditure	Non-defaulter		Defaulter		t-value	Total	
	Mean	SD	Mean	SD		Mean	SD
For family consumption	10372.12	3855.79	9120	4047.47	2.304**	9746	3982.79
Maximum	20086		10502			24070	
Minimum	3798		9120			13220	
For purchase of inputs	381.32	532.91	369.32	348.48	0.927	375.32	448
Maximum	2600		1500			2600	
Minimum	350		350			350	

Source: Computed from survey data

**Significant: at less than 5 percent level of significant

4.1.1.13 Supervision by management of Cooperatives and Experts

In order to ensure efficient utilization of credit timely supervision of lending institution is very important. Such supervision prevent the misuse of credit for non productive and hence facilitate regular loan repayment. Utilization of credit for the intended purpose in turn ensures increase in production and income and ultimately for the agricultural development. Commonly loan collection in the study area is performed by loan committee of the cooperatives. Moreover the committee has a responsibility for timely supervision and to follow up the credit utilization of borrowers at their locality. According to the survey result, supervision of borrowers by the committee members before the due date of loan repayment was found to be important.

From the total borrowers 71 % of the sample households responded that they are supervised by loan committee before the due date of loan repayment whereas 29% of the respondents reported that they were not supervised by any loan committee and experts. From which the result shows 66 (85%) non defaulters and 44 (56%) defaulters were supervised and 12 (15%) non defaulters and 34 (44%) defaulters were not supervised. Therefore, the results shows supervision and close follow up after disbursement of the loan is very fundamental to ensuring efficient utilization and repayment. There is significant difference between the non defaulter and defaulter borrowers at less than 1 percent level of significance .The (Chi-square value is 14.922***.).

Table 22: Supervision of Credit beneficiaries by management of Cooperatives and Experts

	Non- Defaulter		Defaulter		Chi-square	Total	
Description	No	%	No	%	value	No	%
Yes supervised	66	85	44	56	14.922***	110	71
No supervised	12	15	34	44		46	29
Total	**78**	100	**78**	100		**156**	100

Source: Computed from survey data

***Significant: at less than 1 percent

4.1.1.14 Training

Training enables farmers to increase their knowledge and improve their skills. A typical training course is likely to include demonstrations and visits to the farmersô fields that have used the credit properly. The survey results show that 97 per cent of the respondents stated that they were trained on the proper use of credit and repaying the loan in time. Whereas the other 3 per cent of the respondents stated that they were not trained.

Moreover, 100 per cent of the non-defaulters respond that they were trained on use of credit whereas 95 per cent defaulters responded took training and only 5% of defaulters were not trained. The value of χ^2 4.105** also indicated that the mean difference between the non-defaulter and defaulter groups was statistically significant at less than 5 per cent level of significance with regard to training on credit use and repay in time (Table 17). The possible explanation for this is that in the study area the trained farmer might have used the borrowed fund properly and helped them in repaying their debt in time.

Table 23: Borrowers' responses on availability of training

	Non-defaulter		**Defaulter**			**Total**	
Descriptions	**No**	**%**	**No**	**%**	**χ^2-value**	**No**	**%**
Trained	**78**	**100**	**74**	**95**	**4.105****	**152**	**97**
Not trained	**0**	**0**	**4**	**5**		**4**	**3**
Total	**78**	**100**	**78**	**100**		**156**	**100**

Source: Computed from survey data

** Significant: at 5 per cent level of significance

4.1.1.15 Saving habit of the respondents

Farmers usually save from their proceeds for consumption smoothing purposes through out the year, accumulation of wealth, and for contingency purposes in case of bad harvest or accident etc, The more the amount of savings, the greater the capacity to invest properly and repay on time. Table 23 below shows that from the total responders only 52 (33%) did not have saving habit In this study the majority of non defaulter and defaulter respondents have no saving habits. As the observed survey result, these reasons might be stated from lack of awareness, lack of convenient nearby saving and credit cooperatives and lack of enough amount of money to save for the respondent him/her self. Hence, households need awareness creation; the cooperative agencies take a lionôs share to promote and to motivate farmersô about saving and credit save today for better tomorrow .Therefore, in this study (Chi-square value 0.115) shows that there is no statistically significant difference between non defaulters and defaulters.

Table 24: saving behavior of borrowers

	Non- Defaulter		Defaulter		Chi-square value	Total	
Saving culture	No	%	No	%		No	%
Yes	27	35	25	32	0.115	52	33
No	51	65	53	68		104	67
Total	78	100	78	100		**156**	100

Source: Computed from survey data

4.1.1.16 Sufficiency and timeliness of credit

The sufficient amount of credit means that the supply of credit equivalent to the amount of demanded, On the other hand if the households get enough amount of loan and timely credit service may help eliminate from the discrimination of informal lenders. The survey results reveal that 131 (84 %) of the borrowers acquired that sufficient amount of credit. was disbursed whereas only 25 (16%) borrowers not received sufficient amount of credit, 66 (85%) of the non-defaulters and 65 (83%) of the defaulters reported that they received sufficient amount of credit. In the study area if the households acquired sufficient amount of loan, it might enable them to utilize properly and repay their loam timely. Pearson Chi-Square value 0.048 shows that there is no statistically difference between the non defaulters and defaulters.

On the other hand the basic logic regarding to the timeliness of credit is if the borrower acquire credit on time, he/she can utilize the loan on proper time and get a better output. Therefore, Table 24 indicated that 72 (92%) non-defaulters and 61(78%) defaulters were reported that credit services were delivered on time. The remaining did not acquire timely. In this study Pearson Chi-Square value 6.171** revealed that there is a statistically significant difference between the non defaulter and defaulter borrowers. Therefore, the loan received by the borrowers on time, the more the chance of the repayment of the credit at proper time.

Table 25: sufficient amount and timeliness of credit

	Non- Defaulter		Defaulter		Chi-square value	Total	
Description	No	%	No	%		No	%
Sufficiency amount							
Sufficient	66	85	65	83	0.048	131	84
Insufficient	12	15	13	17		25	16
Total	78	100	78	100		**156**	100
Timely credit service							
Yes	72	92	61	78	6.171**	133	85
No	6	8	17	22		23	15
Total	78	100	78	100		**156**	100

Source: Survey results

** Significant: at less than 5% level of significances

4.1.1.17 Amount of money borrowed by the household

Food security loan is the main part of the study. The maim aim of this loan is to enable the poor farmers for the purpose of different asset building income generating activities distributed through cooperatives. These activities are dairy cow, dairy and shoats, oxen fattening and petty trade, Out of 156, respondents involved the major activity 115 (74%) were in dairy cow production; and also out of the total majority 143 (91.7%) households the amount of loan get 1500 Birr. On average the amount of credit obtained by the borrowers was Birr 1469.5 with standard deviation of 137.78 during the study year.

Average amount of credit taken by non-defaulters was 1489 birr with the minimum amount 950 birr and maximum amount 2000 Birr. It is relatively higher than the amount of credit obtained by defaulters (Birr 1450) with the minimum amount of credit 600 and maximum of 1500 birr. The t-value -0.726 results indicated that there is no statistically significant difference between non defaulter and defaulter borrowers.

Table 26: Respondents response Amount of Money borrowed (in Birr)

	Non- Defaulter		Defaulter			Total	
Amount of credit	Mean	SD	Mean	SD	t-value	Mean	SD
From Food security	1489	77.78	1450	177.57	-0.726	1469.50	137.78
maximum	2000		1500			200	
Minimum	950		600			600	

Source: Survey results

Table 27: purpose of the loan

	Non- Defaulter		Defaulter		Chi-square value	Total	
	No	%	No	%		No	%
For dairy	57	73	58	74	4.031	115	74
Dairy & shoats	10	13	8	12		18	11
Oxen fattening	8	11	12	14		20	13
Petty trade	3	3	0			3	2
Total	**78**	100%	**78**	100%		**156**	100%

Source: Survey results

4.1.1.18 Loan from other sources

According to the survey result the main source of loan is the food security loan. But, besides farmers credit obtained from other source such as commercial bank with government collateral for agricultural inputs such that (fertilizer, improved seed, pest-sides) ,dedebit for household packages for purchase of oxen petty trade and etcé , saving and credit cooperatives for consumption smoothening and petty trade and from informal money lenders. The survey result indicates that out of 156 borrowers, 114 (73.1%) were borrowed from commercial Bank, 13 (8.3%) from dedebit, 8 (5.1%) from saving and credit cooperatives and 21 (13%) from informal sources which are money lenders. On

average loan from commercial bank was birr 359.00 with the standard deviation 317.87 with the minimum 160 Birr and maximum 2000 Birr. Average amount from dedebit was 56.41 birr with the standard deviation 282.88 and the minimum amount of 1200 Birr and maximum 10,000 Birr. From saving and credit cooperatives average amount taken was 285.13 Birr with the standard deviation 1264.89 and the minimum of 200 Birr and maximum 2000Birr.Hence, the Table 27 shows that defaulters credit taken from other sources were greater than the non defaulters. Hence defaultersô might have been priority gives to repay for other sources rather than the food security loan. T-value -1.686* this result reveals that there is significant difference between the two groups.

Table 28: other sources of credit used by sample farmers

	Non- Defaulter		Defaulter			Total	
Amount of credit	Mean	SD	Mean	SD	t-value	Mean	SD
From Commercial Bank	3.16	288.65	4.016	341.16	**-1.686***	359.00	317.87
From Dedebit	89.7436	375.75	23.07	132.82	1.477	56.41	282.88
From Saving and credit	3.97	1679.21	1.73	612.78	1.107	285.13	1264.89

Source: Survey results

*Significant at less than 10 percent level of significant

Table 29: Credit obtained from informal lenders

	Non- Defaulter		Defaulter		Chi-square value	Total	
	No	%	No	%		No	%
Yes(obtained)	10	13	11	14	.055	21	13%
No	68	87	67	86		135	87%
Total	**78**	100%	**78**	100%		**156**	100 %

Source: Survey results

4.1.1.19 Changes in their life after Credit Use

From 156 borrowers about 87% of the respondents reported that they were advantageous from the loan intervention through different income generating activities Remaining 20 (13%) respondents were not advantageous. Out of the total 70 (90%) were non defaulters and 66 (85%) were defaulters. There were many improvements to the beneficiaries by credit intervention. Most 64 (41%) of the respondents were reported that they were able to increase there income to improve there nutritional status of family. The remaining said that they sent their children to school, build their own house, increased the number of livestock and received multiple benefits from credit. This indicates that it may enable and generate more income of borrowers help to use the loan properly and to repay their loan on time. Therefore, Table 29.chi-square value15.483*** shows that there is statistically significant difference between changes their living standard after credit uses.

Table 30: respond of respondents after credit users

	Non- Defaulter		Defaulter			Total	
Descriptions	No	%	No	%	Chi-square value	No	%
Change after credit							
yes	70	90	66	85	.918	136	87
no	8	10	12	15		20	13
Total	**78**	100	**78**	100		**156**	100
Changes after credit uses							
I Educated my children	5	6	4	5		9	6
I Built my house	9	12	16	21		25	16
Increase livestock	6	8	8	10		14	9
Improved in consumption	30	38	34	44	15.483***	64	41
all	20	26	4	5		24	15
after credit not changed	8	10	12	15		20	13
Total	**78**	100	**78**	100		**156**	100

Source: Computed from survey data

4.1.1.20 Respondents priority Loan repayment

Credit is an input for development needed by the poor farmers for different activities. Hence, respondents may give priority of repayment for different types of loans such that short term loans, medium term loan or other informal loans because of different reasons. It might be due to fear, if they do not settle their debt in time they can not get other loans for the coming production season, due to the existence of collateral and due to the high rate of interest.

The sample survey indicate that, out of the total 156 respondents 34 (22%) give priority to the Bank loans, 61(39%) food security loan, 20 (13%) dedebits loan and 41(26%) for all loans out of them 42% non defaulters and 10% defaulters were give priority to all loans.

In regarding reason for priority, 87 (56%**)** respondents were afraid of high interest rate, 17 (9%) due to the existence of collateral and 54 (35%) respond that the loan must be rapid. Out of them 64% non defaulters and 5% defaulters said that the loan must be repaid. This investigation indicates the non defaultersô were more appropriate to repay their loan than defaultersô

On the other hand, the strong legal system of credit provision is the main factor influencing borrowers to repay in time .The result in Table 30 shows out of the total, 38 non defaulters and 40 defaulters said that the lending institution could not take legal action even if the borrowers not repay their debt in time. Hence due to the above reasons cooperatives and Government concerned bodies should give more emphasis on training, follow up awareness creation for the legal system of disbursement and repayment of the loan. Therefore, in this study there is statistically significant difference between the variables and loan repayment.

Table 31: priority of loan repayment

Description	Non- Defaulter		Defaulter		Chi-square value	Total	
	No	%	No	%		No	%
Give priority							
banks loan	26	33	8	10	49.524***	34	22
food security loan	17	22	44	56		61	39
dedebits loan	2	3	18	23		20	13
all	33	42	8	10		41	26
Total	78	100	78	100		**156**	100
Reason for priority							
due to high interest rate	22	28	65	83	61.081***	87	56
due to the existence of collateral	6	8	9	11		17	9
it must to be repay	50	64	4	5		54	35
Total	78	100	78	100		**156**	100
Legal action							
Yes	40	51	38	49	0.103	78	50
No	38	49	40	51		78	50
Total	78	100	78	100		**156**	100

Source: Survey results

*** Significant at less than 1 percent level of significant

4.1.1.21 Beneficiaries of safety net program households

The study area is one of drought prone area. Most of the poor households are safety net program beneficiaries. In this study the result reveals that out of the total 156 respondents 96 (55%) were not beneficiaries of safety net program. Whereas the remaining 60 (34%) were safety net beneficiaries (not able to feed their family members). With regarded to loan repayment, out of the total non defaulters 55 (71%) are not safety net beneficiaries while 23 (29%) are safety net beneficiaries. While out of the total defaulters 41 (53%) were not safety net beneficiary, and 37 (47%) were safety net beneficiary. Therefore, in

this study the chi-square value. 5.308** indicates that there is statistically significant different at less than 5 percent level.

Table 32: beneficiaries of safety net program respondents respond

	Non- Defaulter		Defaulter		Chi-square value	Total	
Description	No	%	No	%		No	%
Loan repayment							
Beneficiary	23	29	37	47	5.308**	60	34
Not Beneficiary	55	71	41	53		96	55
Total	78	100	78	100		**156**	100
Credit utilize							
Beneficiary	34	33	26	50	4.388**	60	34
Not Beneficiary	70	67	26	50		96	55
Total	**104**		**52**			**156**	100

** Significant at less than 5 percent level of significant Chi-square value 5.308**

4.1.1.22 Natural hazard

Natural hazard reduced farm and non farm income of farmers by affecting the productivity of agricultural and non agricultural activities. This study indicates that from the total 156 households 107 (69%) were faced by the natural catastrophic like flood, draught frozen and the death of livestock. The remaining 49 (31%) were not. Out of the experimental 47 (60%) were non defaulter and 60 (77%) were defaulters affected by natural hazards. This result shows that the defaulters more affected than non defaulters. Therefore, natural hazard is influencing borrowers not to repay their loan on the time of due date. Chi-square value5.028**shows that there is statistically significant difference at less than 5 percent level between the influential factor and loan repayment.

Table 33: Natural hazard faced Borrowers

	Non- Defaulter		Defaulter		Chi-square value	Total	
Problem of hazards	No	%	No	%		No	%
Yes I had face	47	60	60	77	5.028**	107	69
No	31	40	18	23		49	31
Total	**78**	100	**78**	100		**156**	100

Source: Computed from survey data

** Significant at less than 5 percent level of significant

4.2 Factors Influencing Credit utilization and Repayment Performance:

4.2.1 Results of Econometric model Analysis

To study factors influencing Credit utilization and Repayment Performance, data gathered from 156 sample households were subjected to logistic regression analysis. The statistical software package used for analyzing the data was SPSS 16.0 for windows. The logit model was selected for analyzing the factors influencing credit utilization and repayment performance of the sample households. Prior to running the logit regression model, the continuous explanatory variables were checked for the existence of multi-collinearity problem.

Variance Inflation Factor (VIF) was computed to detect the problem of multi-collinearity for continuous explanatory variables. Hence, the VIF values for continuous variables indicate that there is no multi-collinearity effect between them. (Appendix 8&9) Therefore, to determine the explanatory variables that are good predictors of the Credit Utilization and Repayment Performance, the logit regression model was estimated using the Maximum Likelihood Estimation Method. 13 and 14 explanatory variables were hypothesized to explain Credit utilization and Repayment Performance of sample households respectively. Out of these, four variables were explained that the loan repayment performance and one variable is found significant in explaining the credit utilization while the remaining were found not-significant in explaining the variations in the dependent variables.

4.2.2 Determinants of credit utilization and repayment performance

Logistic regression analysis was conducted to determine factors that contribute significantly influence to credit utilization and loan repayment. To estimate the maximum likelihood estimates of the logit regression model the following variables analyzed in the logit model. Those are total annual income (X8),annual family expenditure for family consumption (X11),total number of livestock (X5),oxen ownership (X6), supervision by experts & management committee of cooperatives (X16), safety net beneficiaries (X21) diversion for other income generating activities (X23) mis-utilization of credit (X18), amount of credit from other sources (X24), sufficient amount of credit (X20),credit service in time (X22),training before credit use (X17), change living standards after credit use (X15), natural hazard (X27), were considered as important factors may influence the credit utilization and repayment among membersôof cooperatives in the study area.

Out of these factors the loan repayment was influenced by only four variables .these are supervision of borrowers by experts & management committee of cooperatives, mis-utilization ,amount of money borrowed from other sources and natural hazard. On the other hand credit utilization is also influenced by only one variable this variable is timely credit was found significant.

Whereas, the remaining coefficients of ten explanatory variables, namely, total annual income, total family expenditure, oxen ownership, beneficiary of safety net, number of livestock, diversify for different other income generating activities, sufficient amount of credit, credit service in time, training before credit use, change in their life after credit use (excluding for credit utilization) were unable to explain loan repayment performance of the sample households and/or credit utilization indicating that the two groups were homogeneous with regard to these variables. The results of the logit regression analysis are shown in Table 33 and 34.

Table 34: Logistic regression estimates of credit use $v_{s.\ mis\ use}$ in E/Alaje Woreda

		B	S.E.	Wald	Sig.	Exp(B)
Step 1[a]	Annual income	.000	.000	.319	.572	1.000
	Total expenditure	.000	.000	.016	.901	1.000
	Number of livestock	.260	.431	.365	.546	1.297
	Oxen Owner	-.838	1.119	.561	.454	.433
	Supervision	1.410	1.521	.859	.354	4.097
	Safety net	-1.923	1.478	1.694	.193	.146
	Diversion	1.021	1.388	.541	.462	2.775
	Other loan	.000	.002	.015	.903	1.000
	Sufficient amount credit	2.927	2.350	1.552	.213	18.676
	Timely credit	**2.752**	**1.537**	**3.207**	**.073***	**.064**
	Training	.354	3.526	.010	.920	1.425
	Change after credit use	1.083	1.839	.347	.556	2.954
	Natural hazard	1.557	1.292	1.452	.228	4.745
	Constant	-7.560	2.916	6.720	.010	.001
Overall percentage correctly predicted						96.8
Chi-square value						162.917***
-2 Log Likelihood						35.676
Sample size						156

Source: Model out put

*, Significant at 10 per cent probability level

Table 35: Logistic regression estimates of loan defaulters $v_{s.}$ non defaulters in E/Alaje Woreda

		B	S.E.	Wald	Sig.	Exp(B)
Step 1[a]	Annual income	.000	.000	.084	.772	1.000
	Total expenditure	.000	.000	.179	.672	1.000
	Number of livestock	.098	.137	.510	.475	1.103
	Oxen Owner	.098	.353	.076	.782	1.103
	Supervision	**1.475**	**.500**	**8.692**	**.003*** **	**.229**
	Safety net	.624	.449	1.932	.165	1.866
	Diversion	.228	.588	.150	.698	1.256
	Misused	**-1.358**	**.440**	**9.547**	**.002*** **	**3.889**
	Other loan	**-.001**	**.001**	**3.060**	**.080***	**.999**
	Sufficient amount credit	.574	.732	.615	.433	1.775
	Timely credit	1.189	.756	2.473	.116	.305
	Training	-22.072	1.741E4	.000	.999	.000
	Change after credit use	.635	.640	.983	.322	1.886
	Natural hazard	**.862**	**.451**	**3.657**	**.056***	**2.368**
	Constant	-1.364	.971	1.973	.160	.256
Overall percentage correctly predicted						73.7
Chi-square value						54.155***
-2 Log Likelihood						162.107
Sample size						156

Source: Model out put

*, ***, significant at 10 and 1 per cent probability level, respectively

Supervision of credit beneficiaries by Experts & management of Cooperatives (X16):-To ensure proper credit utilization and to repay their loan in appropriate time supervision is the most essential with integrated and closer follow up. The model result shows significant at less than 1 per cent probability level. This variable has an important influence on the loan repayment performance. It had strongly positive relationship with the dependent variable.

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Therefore, Supervision and timely follow up by experts and loan committee of cooperatives to help the householdsô to increase awareness creation what they invest and how to get income from different income generating activities and help to prevent the misuse of credit for non productive purposes and hence facilitates regular repayment..

Mis-utilized of the loan for unintended purpose (X18):-

The result of the model showed that this variable has strong significant at 1 percent influence on loan repayment performance in the study area. This result shows negative relationship with the dependent variable. The miss utilization of the loan indicates that the borrowers may misuse the loan totally or partially due to social, personal and cultural problems for unintended purpose.

Moreover, miss utilized borrower cannot generate additional income because credit is one of the fundamental inputs for development if properly used for the intended or productive purpose. Therefore miss utilization influenced the farmers not to repay at the time of repayment period.

Amount of credit from other sources (X24):- The results of the logit model show that this variable affects loan repayment negatively. This variable is significant at 10 per cent level of significance. Moreover, increase in amount of loan enables the borrower to generate more income. In the study area farmers get their loan from different lending institutions, such as banks, food security project, MFI and saving and credit cooperatives. However, the result of the study reveals only about the food security loan. Whereas the result shows that the amount of loan borrowed from other sources had influenced the repayment performance of the proposed loan/food security loan.

Natural hazards and incomes lose of borrowers (X27):- The results of the logit model show that this variable affects loan repayment negatively. This variable is significant at 10 per cent level of significance .This reveals the natural disaster reduced farm and non farm income of farmers by affecting the production and productivity. The study area is one of the droughts prone Woreda especially in 2008/09 production year there is faced by

shortage rainfall. For this reason the farmers loses their crop and livestock animals. Hence natural calamites have a negative impact on loan repayment of farmers.

Timely credit service (X22):- Regarding to the timeliness of credit this variable took the expected sign and its coefficient was significant at 10 per cent probability level. This variable has important influence for proper credit utilization. It had a positive relationship with the dependent variable showing that if the borrowers get credit input on time; he/she can utilize the loan on appropriate time and get a better output. Therefore, timely credit service help user farmers to use the loan in appropriate way and perceived importance of loan by the borrower on time, and accelerates the chance of the repayment of the loan at proper time.

Chapter Five

Conclusion and Recommendations

5.1 Conclusion

Ethiopian economy is dominated by subsistence agriculture. Agricultural sector Accounts for 46 percent of the GDP, 80-90 percent the export revenues and employs over 85 percent of the population. The yearly growth of food production in the country could not exceed1percent for several years while the average population growth rate is nearly 3 percent. As a result, chronic food shortage and drought induced famines have been common phenomena in the country. However, poverty is still pervasive with 47 percent of the population estimated to living in below the poverty line.

Small farmers in Ethiopia, as in many developing countries, lack finance to purchase productive agricultural inputs. With the exception of family labors and local seeds, almost all inputs required in agricultural production are to be purchased. However, the majority of Ethiopian population comprises small farmers, who cannot adopt a technology without external funding.

As a result efforts are being made by the federal and regional governments to provide comprehensive financial services, through microfinance, cooperatives and NGOs to solve the smallholdersô problem; such as lack of factors of production (i.e., improved seeds, fertilizer, farm tools and credit for different activities such as purchase of dairy cows, oxen for fattening, sheep& goats and petty trade).This is with the assumption that smallholders should utilize the borrowed money for the intended purpose and repay their debt in time.

Therefore, the objective of this study was to investigate the credit utilization patterns and identify the potential demographic and socio-economic factors that are affecting loan

repayment performance of borrowers in the study area. To address the objectives of the study, relevant and related studies were reviewed. The primary data, on which the study mainly depends, was collected from a sample of 156 household heads drawn from 6 cooperatives; these are (4 multi-purposes and 2 saving and credit cooperatives).

A structured survey questionnaire was employed to interview the selected sample household heads. Whereas the secondary data was gathered from different sources such as publications, semi-annual and annual reports of woreda Cooperative, woreda food security desk and regional cooperatives promotion Agency and regional food security coordination office.

In the study the binary logit model was used to identify both the factors that affect credit utilization and repayment performance of households. In addition to the econometric model, descriptive statistics were also used. The descriptive analysis showed that from a total of 156 respondents, 107 of them are male and 49 are females. Regarding credit utilization Out of the total respondents, 104 them are proper users and 52 of them mis users. In terms of their level of education the result shows that the non defaulters have a better performance than defaulters this indicates that literate households are more aware and responsible to use the loan properly and pay their loan in time. The non-defaulters group is economically better off than the defaulter group. The income generated from farm and non-farm activities of the non-defaulters is higher than the income generated by the defaulters. Similarly, the number of livestock owned by the non-defaulters is greater than the number of livestock owned by the defaulters.

Concerning the econometric result, thirteen and fourteen explanatory variables had hypothesized to explain the factors that affect credit utilization and repayment performance of households respectively. One of these variables is demographic type while the others are socio-economic in nature. The logit regression model showed that five variables were significant to affect borrowersô of credit utilization and repayment performance. From these, four variables were significant to affect loan repayment performance of borrowers these variables are supervision by experts & management committee of cooperatives, mis-utilization of credit, amount of credit from other sources

and natural hazard. The remaining one variable is affecting the credit utilization of borrowers. Therefore, except supervision, the remaining three significant explanatory variables are affecting the loan repayment performance borrowers negatively. On the other hand, significant explanatory variable that affect credit utilization of borrowers positively this is timely credit.

Supervision by Experts and management loan committee of cooperatives found significant at less than 1%, have positive and strong impact on the loan repayment performance of sample households. The justification for this could be borrowers who get continues supervision and advice is more likely to be motivated to repay on time than others. Supervision might help farmers to create awareness through teaching the application of new agricultural technologies and in turn, this helps them to improve their income and repay their debt in time.

The other significant variable is misuse of the loan. This variable had significant effect at less than 1% and negatively related to the loan repayment performance, The justification for this could be borrowers who use the loan for unintended purpose such as for personal consumption is more likely to be defaulted to repay on time than others, because they spent on unproductive consumptions.

Amount of credit from other sources also found to be significant variable at less than 10% in the logit regression model. This variable is negatively related to loan repayment. The source of other loans is obtained from banks in which the regional government will sign as collateral on the behalf of cooperatives. In addition the Cooperatives serve the food security program as grass-root loan delivery institution to reach the poor. This study investigates the repayment performance of distributed loan of food security through cooperatives for the purpose of different agricultural activities such that (dairy cow, oxen fattening, sheep & goat, petty trade and etcé). The negative relationship of this variable could be explained with several reasons i.e. fear of the increasing interest rate on credit for input, if they default credit for input, may not get agricultural loan for the next production year. For this reason, borrowers might have given priority to other sources of loan which affects repayment performance of the food security loan.

Natural hazards and incomes lose of borrowers **is** found to have significant but related negatively to the loan repayment performance. As the study area is one of the drought prone Woreda, farmers in this area are repeatedly affected by drought as a result the might not have harvested enough production .In addition they will also lose animal feed in which case they might faced the death of livestock, that affect their repayment.

Timely credit service is found to have a positive impact on credit utilization of the borrowers. Timely credit service is vital for any other agricultural investments. This variable encouraged farmers use the loan in appropriate way and time for production purpose.

In general, the model out put shows that the most influential factors of credit utilization and loan repayment performance are supervision, mis- utilization, loan from other sources, timely credit service and natural hazards. Therefore, those influential factors have to be give emphasis by integrated Governmental concerned bodies, food security office and private sectors (cooperatives).

5.2 Recommendation

Based on the findings of the study the following are recommended:

- Close supervision and continuous follow up before and after credit disbursement brings its own positive impact. Therefore, the cooperative agency and food security desk with concerned bodies should play key role in providing the technical capacity of the supervisors, cooperative experts and cooperative committees so as to make regular supervisions.
- Mis- utilization of loan affects the repayment performance of borrowers. This might arise due to social, personal and cultural problems to use the loan totally or partially for unintended purpose. Therefore, the trend should be changed by employing different awareness raising activities such as trainings and experience sharing. So that they can able to use the loan properly and they repay the loan in time.

- Farmers get loan from different lending institutions, such as banks, food security project, MFI and saving and credit cooperatives. The loans range from a year which is short term loan to five year medium term loans. The short term loan repayment has effects on the medium term loan. There fore There an integrated loan service with clear grace period of repayment arrangements.
- Natural hazards have a direct negative impact on loan repayment. These are rare events that occur beyond the capacity of the borrower. There fore, means has to be sought to tackle such problems in advance such as insurance, compensation mechanism, like write- off the agreement of the loan if death of their animals and lose of crop might be happened by unforeseen events.
- If the farmers get credit on time; they can utilize the loan effectively and get a better output. Therefore, timely credit service help farmers to use the loan in appropriate way and perceived importance of loan by the borrowers and accelerates the chance of the repayment of the loan at proper time. Therefore, lending institutions has to provide the loan on time when the borrowers need it.

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Appendixes

Appendix I: Questionnaire for the sample respondents of Household

Mekelle University

College of Business and Economics

Department of Cooperatives

The questionnaire developed for the study of Credit Utilization and Repayment Performance of members of Cooperatives in Emba Alaje Woreda, Tigray,

Date_____

Code No_____

1 Identification

Name of Respondent (optional) _____

Name of farmerôs service coop _____

Peasant Association_____ Village_____

Age of household head _____ a) 19-30 b) 31-45 c) 46-60 d) >60

Sex of household head a) Female b) Male

Marital status: a) Single b) Married c) Divorced d) Widowed

Educational Level /Years of schooling of the household head

a) Illiteracy b) primary 1-8 c) Junior above grade 9

Are you a household head? _____a) Yes b) No

2 Socio economic characteristics of the Household

2.1 Total family size_____(in number of persons)

a) 1-3 b) 4-6 c) 7-10 d) >10

2.2 When did you become the member of Farmers cooperative? _____

2.3 What are your main sources of income in their order of importance?

a) Sale of crop___ b) Sale of livestock___

c) Off-farm income___ d) Income from packages_____

e) Income from safety net program_____ f) Selling labor_____

g) Weaving _____ h) Local drink sale _____

i) Small business_____ j) others (specify)_____

2.4 Please list your cash income raised from farm and off farm activities annually

a) Income from main crops per year_____.

b) Income from livestock per year_____.

c) Income from off-farm activities per year_____..

d) Others specify per year_____..

3 Expenditure of the Household

3.1 What is the amount of money you have spent in buying different Agricultural inputs & Activities during the last cropping year (in birr)?

a) For Dairy cow ___b) For oxen____ c) For shoats d) For farm inputs & tools

e) For animal feed f) for petty trade g) others

3.2 Indicate the type and amount of money your family has spent during the year 2009

S/N	Type of Expenditure Annually	Amount (Birr)
1	Purchased food items	
2	Crop products like grain , cereals	
3	Animal and animal products like milk, butter, egg, etc	
4	Fruits and vegetable	
5	Industrial commodities like fuel, soap, sugar ,etc	
6	Health Expenses for treatment	
7	Education Expenses	
8	Taxes and Social contribution/obligations	
9	Expenditure for closes	
10	transportation costs	
	Total Expenditure	

4 Resource Characteristics of the Household

4.1 Do you own land? a) Yes b) No

4.2 If your answer is yes, what is the size and use of land holding in 2008/9 crop year?

1) Total cultivated land in 2008/9 crop year? a)1 Thimdi b) 2 Thimdi

c) 4 Thimd d) 6 Thimd e) 8Thimd f) above 8 Thimd

2) Owned by the household d)1 Thimdi b) 2 Thimdi

c) 4 Thimd d) 6 Thimd e) 8Thimd f) above 8 Thimd

3) Rented in? a)1 Thimdi b) 2 Thimdi c) 4 Thimd

d) 6 Thimd e) 8Thimd f) above 8 Thimd

4) Shared cropped in? a)1 Thimdi b) 2 Thimdi

c) 4 Thimd d) 6 Thimd e) 8Thimd f) above 8 Thimd

4.3 Did you obtain loan from other credit suppliers? a) Yes b) No

4.4 If your answer is yes, for what purpose did you borrowed?

a) For Purchase of fertilizer b) For purchase of improved seed _____

c) For others (specify)_____

4.5 How many livestock do you own? Please fill in the following table

S/N	Types of Livestock	Number	Purpose of use	Value of LS in Birr
1	Oxen			
2	Bulls			
3	Cows			
4	Heifers			
5	Calves			
6	Mules			
7	Horse			
8	Donkey			
9	Sheep			
10	Goats			
11	Poultry			
12	Others			

5 institutional and social factors

5.1 Distance of your home from extension agent (hrs) _____

5.2 Distance from cooperative in (hrs)_____

5.3 Have you ever visited and supported by experts and cooperativesô management?

a) Yes b) No

5.4 Did you celebrate social ceremonies in this year? a) yes b) No

5.5 If yes, how much did you spend? a) 500-1000 b) 1001-2000

c) 1001-2000 d) 3001-5000 e) Above 5000

5.6 Who initiated for you to get credit from cooperative?

a) My own initiation c) I took credit in order to get other services

b) My friends initiated me to take credit d) committee of coops

5.7 Did you practice saving? a) Yes b) No

5.8 If your answer is yes, in what form

a) In cash at home b) In cash at bank

c) In cash at saving and credit cooperative d) cash in Dedbit e) other (specify)_____

5.9 How much did you save?_____

5.10 If your answer is no, why?

a) Saving and credit cooperative is not available

b) I do not see the benefit of saving

c) My income is not enough to save

d) Others_____

5.11 Which credit/lending institutions is convenient for you? _____

5.12 Did you obtain credit from informal lenders? a) yes b) No

5.13 If yes, how did you see/ compared with formal credit institutions?_____

6 Credit Availability of the Household

6.1 When did you take credit? a) Before four years b) before three years

c) Before two years d) before one year e) in this current year

6.2 For what purpose did you took?

a) Purchase of Dairy cow b) Purchase of shoats

d) Purchase of oxen

e) Purchase of farm implements f) for family consumption

h) Purchase of modern beehives

i) For petty trade

6.3 Did you utilize the borrowed money for what you have registered? a) Yes b) No

6.4 If your answer is yes, for which activities?

a) Purchase of Dairy cow b) Purchase of shoats

d) Purchase of oxen e) purchase of modern beehives

f) For petty trade/ business g) others (specify)_____

6.5 Did you registered for the purpose of activities right from the beginning?

a) Yes b) No

6.6 If your answer is no, state your reason.

a) I used for social ceremony b) I used for consumption purpose_____

c) I have repaid for other lending institutions _____ d) others (specify)_____

6.7 Are you a beneficiary of safety net program? a) Yes b) No

6.8 If your answer yes, what is your amount of income did you get per year? _____

6.9 If you are not beneficiary of a safety net program what do you think is the reason?_____

6.10 Did you use the loan for diversifying other income generating activities?

a) Yes b) No

6.11 If yes, what types of income generating activities / purpose?

_____

6.12 Did you miss used part of the borrowed money for personal consumption?

a) Yes b) No

6.13 If your answer is yes how much?_____

6.14 Do you have the experience of credit uses? a)yes b) No

6.15 If your answer is yes, for how many years did you uses credit?_____

6.16 From which and how much money did you borrowed?_____

List in the following table.

S/N	Source of credit	Purpose of loan	Amount	Interest	Repaid
1	CBE				
2	Saving& credit cooperative				
3	BOA				
4	Food security				
5	Relative friends				
6	Money lenders				
7	Dedebit				
8	Others				

6.17 Why did you borrow from the above mentioned sources?

a) There is no collateral required b) Easier to get loan

c) Seemed more friendly d) Get terms to suit situation

e) Cheapest source of credit that could be found

f) Other reasons (specify) _____

6.18 Did you get sufficient amount of credit you requested for different activities?

a) Yes b) No

6.19 If your answer is yes, how much? a) 500-1000 b) 1001-2000

c) 1001-2000 d) 3001-5000 e) Above 5000

6.20 Did you get credit service on time? a) Yes b) No

6.21 If yes, what is your advantage?_____

6.22 Did you get any Short term credit? a) Yes b) No

6.23 If yes, how much? a) 500-1000 b) 1001-2000

c) 1001-2000 d) 3001-5000 e) Above 5000

6.24 From which lending institution?_____

6.25 From which lending institution?_____

6.26 Have you been trained/took orientation before loan disbursement about credit use, interest rate, and commitments that you had to fulfill? a) Yes b) No

6.27 What is your Attitude towards credit? _____

6.28 What is your suggestion on interest rate of the loan you took?_____

a) Low b) Fair/reasonable c) High d) Very high

6.29 Did the use of credit bring change in your living standard?

a) Yes b) No

6.30 If your answer is yes, in what aspect in order to importance?

a) I owned assets b) I educated my children

c) I build a house d) my production has increased

e) Increase livestock f) improve in consumption h) others

7 Loan Repayment performance of the Household

7.1 Did you repay your debt? a) Yes b) No

7.2 If your answer is yes, at what time did you pay back your debt?

1) Before time of commitment 2) On time 3) After time of commitment

7.3 If your answer is no, why you become late?

a) I did not get/receive money on time b) I forgot the time of repayment

c) I use for consumption e) others

d) I repaid for other loans

7.4 To which source of loan did you give priority to repay?

a) Cooperative's loan (saving) b) Bank's loan

c) For relative and friends d) for informal money Lender's

d) Food security's loan e) Dedebitos loan f) others

7.5 Why did you give priority to repay? State your reason.

a) Due to high penalty b) Due to high interest rate

C) due to strong legal action d) Due to the existence of collateral

e) Others

7.6 If not repaid on the due date, did the lending institution taken legal action?

a) Yes b) No

7.7 Did you know the end of repayment period of the credit that you took last year?

a) Yes b) No

7.8 If totally not repaid, what were the major reasons/factors, which force you not to repay your loan /debt? (Rank in order to importance)

a) Clothing ____ b) Housing_____

c) School fee____ e) Recreation ____

f) Food consumption g) Negligence

h) Others (specify) _____

7.9 Did you face any natural hazards? a) Yes b) No

7.10 If yes, what are the challenges? a) Flood b) drought c) frozen

d) Fire e) Death of animals f) others (specify) _____

7.11 If the challenge is the death of animals, what kind of animals did you loose?

a)dairy cow b) oxen c)sheep& goats d)others(specify)_____

7.12 If encounter the death of livestock how much do you loose in birr?

a)100_ 500 b) 501_1000 c) 1001_2000 d) 2001_3000 e) above 3000

7.13 If you loose your crop by natural hazards how much income did you loose in birr?

a)100_ 500 b) 501_1000 c) 1001_2000 d) 2001_3000 e) above 3000

7.14 Please if any Other observed Problems about credit disbursement and loan repayment specify it_____

Interviewer's name _____

Signature_____

Date_____

Appendix II: Conversion factors used to estimate the households' livestock Ownership in Tropical Livestock Unit

Animals	TLU-equivalent
Calf	0.25
Heifer & Bull	0.75
Cows & Oxen	1.00
Horse	1.10
Donkey	0.70
Ship & Goat	0.13
Chicken/poultry	0.013

Source: Strock *et al.* (1991)

Appendix III: Food security loan distributed through cooperatives from 2003/04 up to 2008/09

		Credit distributed in each years					
S/No	tabia	2004/05	2005/06	2006/07	2007/08	2008/09	total
1	klma	0	150000	0	162000	171000	483000
2	amed wha	0	47700	92800	162000	171000	473500
3	mayliham	0	150000	71100	162000	171000	554100
4	abeda	150000	0	150000	162000	171000	633000
5	tkea	0	150000	0	162000	171000	483000
6	sesat	150000	126000	0	162000	0	438000
7	atsela	150000	123000	0	162000	58000	493000
8	betmera	150000	150000	150000	162000	0	612000
9	tekliweyane	150000	114000	150000	162000	0	576000
10	ealbe	0	75000	61088	162000	0	298088
11	keyhtekli	150000	75000	0	162000	0	387000
12	djen	150000	118500	150000	162000	0	580500
13	seret	150000	150000	150000	162000	0	612000
14	smret	0	73500	117100	162000	171000	523600
15	fana	150000	150000	150000	162000	0	612000
16	abnet	150000	79500	70500	162000	171000	633000
	total	1500000	1732200	1312588	2592000	1255000	8391788

Source; secondary data from Alaje woreda food security desk

Appendix IV: Food security Matured and repaid loan from 2006/07 up to 2008/09

s/No	Name of tabias	2006/07		2007/08		2008/09		total	
		matured	repaid	matured	repaid	matured	repaid	matured	repaid
1	klma	0	0	25000	45112.5	52500	31000	128612.5	76112.5
2	amed wha	0	0	8500	4542.85	16695	15173.35	36411.2	19716.2
3	mayliham	0	0	20060	5298.7	49830	48015.95	103144.7	53314.65
4	abeda	35000	65875	38665	78708.55	50000	71639	200347.6	216222.5
5	tkea	0	0	34000	18368.82	52500	6065	76933.82	24433.82
6	sesat	63500	40448	106750	58015.17	32120	14721.5	104856.7	113184.67
7	atsela	63500	40448	99890	94570.75	23800	31894	150264.8	166912.75
8	betmera	31775	34460	442270	82358.5	52500	22000	156858.5	138818.5
9	tekliweyane	32760	32450	86000	71463.73	64994	36368	172825.7	140281.73
10	ealbe	18225	20130.5	16750	8320.98	26250	23911	58481.98	52362.48
11	keyhtekli	18225	20130.5	69705	17959.41	61344	27226	106529.4	65315.91
12	djen	36840	22445	68830	35467.82	76569	47773	159809.8	105685.82
13	seret	36632	28000	91815	66207.64	57594	30073	153874.6	124280.64
14	smret	0	0	14750	17708.82	25725	12033	55466.82	29741.82
15	fana	37500	74105	61726	75063.16	72500	23049	170612.2	172217.16
16	abnet	32490	32000	54375	72936.6	62919	20786.5	156642.1	125722.5
	total	406447	410492	1239086	752104	777840	461728.3	2025573	1624323.65

Source: Secondary data from Alaje woreda Cooperatives & food security desk

Appendix V: Food security loan distributed through cooperatives from 2003/04 up to 2008/09.In type of activities, total number of borrowers, number of animals and total in birr.

S/N	Types of activities	Total number of borrowers	Number in kind	Birr
1	dairy cows in birr	5069	4109	5,250,680.00
2	for goat & sheep in birr	2206	4997	1,091,782.00
3	fattening	169	205	202,770.00
4	modern beehives	46	105	55,000
5	beekeeping	8	14	5150
6	petty trade	312	-	444,038
	Total	7810	-	7,049,420.00

Source Woreda Cooperative secondary data

Appendix VI: From 1999/02-2008/09 Banks loan distributes Through cooperatives

	from 1991/92-1999-2000 banks loan distributes through cooperatives		
	type	amount in qui	amount in birr
1	Dap& Urea	6577.95	1661591.35
2	improved seed	1230.82	412168.2
3	motor pump	31	121129.98
4	water pump	84	43050
5	cement	6948.5	219886.5
6	plastic	162	105022
	Total		2562848.03

Source Woreda Cooperative secondary data

Appendix VII: Amount of distribution and repayment of Banks loan From 1991/92-1999-2000 banks loan distributes through cooperatives

	name of coop	purpose of loan	Amount of distributed	repaid	Arrear
1	frehiwot	Agric inputs	853520.52	790320.4	63200.06
2	w/abeba	Agric inputs	347117.23	104629.9	42492.23
3	seret	Agric inputs	145707.25	64797.25	80910
4	betmera	Agric inputs	99777.29	104569.78	4792.49
5	f/kalsi	Agric inputs	32723.25	1427.55	17895.7
6	f/sweat	Agric inputs	154068.9	129035.87	25033.1
7	genet	Agric inputs	195657.5	123182.49	72475.01
8	kilma	Agric inputs	90557.5	60008	30549.5
9	selam	Agric inputs	107558.83	82416.15	25142.7
10	marta	Agric inputs	51232	16579.35	34652.65
11	fana	Agric inputs	126220.28	78635.12	47585.16
12	B/lekatit	Agric inputs	77317.78	60647.33	16670.45
13	z/wedishre	Agric inputs	229309.64	143587.5	85722.14
	total		2510767.97	1759836.69	547121.19

Source Woreda Cooperative secondary data

Appendix VIII: Multicollinnility test using Contingency Coefficient

	Repay	Edu	ox	visit	Spend	benefi	diversi	miss	Suffici	Credit	train	Change	priority	Hazard
Repay	**1**	**.267**	**.153**	**.295**	**.256**	**.181**	**.183**	**.326**	**.017**	**.195**	**.160**	**.076**	**491**	**.177**
Edu		**1**	**.087**	**.148**	**.210**	**.057**	**.162**	**.176**	**.274**	**.164**	**.101**	**.047**	**.170**	**.152**
ox			**1**	**.256**	**.148**	**.305**	**106**	**.138**	**.027**	**.168**	**.017**	**.078**	**.217**	**.111**
visit				**1**	**.173**	**.020**	**.146**	**.166**	**.024**	**.203**	**.073**	**.249**	**.137**	**.017**
spend					**1**	**.143**	**.091**	**.206**	**.098**	**.136**	**.048**	**.137**	**.174**	**.030**
benefi						**1**	**.217**	**.199**	**.022**	**.153**	**045**	**.012**	**.182**	**.033**
divers							**1**	**.161**	**.123**	**.094**	**.074**	**.124**	**.276**	**.232**
miss								**1**	**. .006**	**.107**	**022**	**.112**	**.199**	**.041**
Suffici									**1**	**.453**	**.071**	**.063**	**.210**	**.006**
Credit										**1**	**.067**	**003**	**.163**	**.048**
train											**1**	**.178**	**.104**	**.109**
Change												**1**	**.235**	**.094**
priority													**1**	**.253**
Hazard														**1**

Source: - computed from model output

Appendix IX: Test on multi Collinearity effect using Credit utilization

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	.797	.085		9.420	.000		
	annual cash income	1.410E-7	.000	.002	.024	.981	.255	3.924
	family expenditure	1.308E-5	.000	.109	1.451	.149	.442	2.262
	Total livestock	-.016	.016	-.091	-.995	.321	.296	3.383
	oxen	.034	.044	.064	.788	.432	.373	2.679
	income from safety net	-1.190E-5	.000	-.034	-.651	.516	.892	1.121
	commercial Bank	.000	.000	-.092	-1.715	.088	.864	1.157
	misused	.000	.000	-.765	-14.561	.000	.896	1.117
	Total borrowed birr	2.177E-5	.000	.063	1.211	.228	.922	1.085

Source: Computed from model output

Appendix X: Test on multi Collinearity effect using Repayment factors

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	.390	.138		2.822	.005		
	annual cash income	-1.124E-6	.000	-.018	-.118	.906	.255	3.924
	family expenditure	1.658E-5	.000	.130	1.124	.263	.442	2.262
	total number of livestock	.014	.026	.074	.528	.599	.296	3.383
	oxen	.060	.072	.105	.833	.406	.373	2.679
	income from safety net	-1.847E-5	.000	-.050	-.618	.538	.892	1.121
	commercial Bank	.000	.000	-.209	-2.531	.012	.864	1.157
	how much misused	.000	.000	-.163	-2.007	.047	.896	1.117
	Total money borrowed	2.594E-5	.000	.071	.882	.379	.922	1.085

Source:: Computed from model output